

# IntraSwitch™

## 5212 User's Manual

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Note: The warranty card must be filed with Asanté Technologies within 30 days after the date of purchase.

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# About This Manual

This section provides an overview of the IntraSwitch 5212 User's Manual. It describes the manual's chapters, document conventions, and intended audience.

**This chapter contains the following sections:**

- Chapter contents — page viii
- Document conventions — page ix
- Audience — page x

# About This Manual

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## Chapter Contents

This manual is divided into the following chapters and appendices.

Chapter/Appendix	Description
1 Introduction	Describes the IntraSwitch 5212, its package contents, features, switching capacity, and management options.
2 Installation	Describes the steps required to install the IntraSwitch 5212, connect it to the network, and configure it for management.
3 LED Indicators	Describes how to monitor the IntraSwitch 5212's front panel LEDs.
4 Management	Describes the different management options available with the IntraSwitch 5212 and how to connect to the IntraSwitch 5212 using those options.
5 Console Management	Describes how to manage the IntraSwitch 5212 using the Console or Telnet Local Management Interface.
6 Status and Statistics	Describes how to view the IntraSwitch 5212's current operating information and statistics.
7 Advanced Management	Describes how to use RMON to manage the IntraSwitch 5212.

Chapter/Appendix	Description
Appendix A, "Troubleshooting"	Provides a list of troubleshooting tips for isolating problems with the IntraSwitch 5212 or the network.
Appendix B, "Supported MIBs"	Describes the MIBs supported by the IntraSwitch 5212.
Appendix C, "Technical Specifications"	Provides a list of the IntraSwitch 5212's technical specifications.
Appendix D, "Console Management Menu"	Provides a one-page map of the IntraSwitch 5212's Local Management Interface.

## Document Conventions

This manual uses the following conventions to convey instructions and information:

- Commands and key words are in **boldface** font.
- △ *Note:* Noteworthy information, which contains helpful suggestions or references to other sections in the manual, is in this format.
- ▲ **Important!** Significant information that calls attention to important features or instructions is in this format.

## About This Manual

<b>Audience</b>	<p>This manual uses terms and concepts associated with Ethernet networking and switches.</p> <p>It is recommended that the user of this manual be familiar with the basics of local area networks and Ethernet switches.</p>
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# 1

## Introduction

This chapter is an introduction to the IntraSwitch 5212. It provides an overview of the IntraSwitch 5212 and describes its features, management and configuration capabilities, switching capacity, and factory default settings.

This chapter contains the following sections:

- IntraSwitch 5212 — page 1-2
- IntraSwitch Components — page 1-3
- Configuration/Management — page 1-4
- Switching Capacity — page 1-5
- Features — page 1-6
- Package Contents — page 1-7
- Tools and Materials — page 1-8
- Factory Defaults — page 1-10

# IntraSwitch 5212

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The Asanté IntraSwitch 5212 is a high-performance, manageable Ethernet switch that offers 12 10Base-T ports, one 10/100TX port, and one optional Asanté Media Independent Interface (Asanté MII) expansion slot.

The Asanté MII expansion slot allows for the addition of 10/100TX, 100Base-FX, or 10Base-FL connections. See page 2-6 for more details.

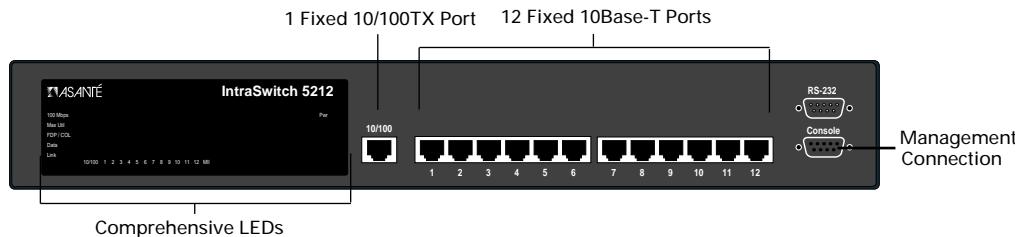


Figure 1-1 IntraSwitch 5212 front panel

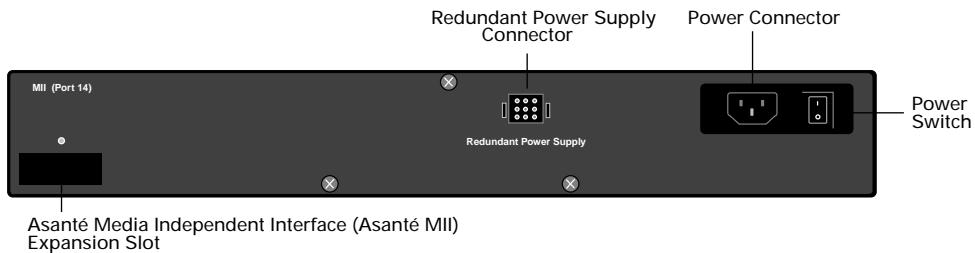


Figure 1-2 IntraSwitch 5212 back panel

## IntraSwitch Components

### 10/100TX Port

The auto-negotiating 10/100TX port allows for the connection of a 10Base-T or a 100Base-T (Fast Ethernet) device. See "10/100TX Port" on page 2-9 for more information.

### 10Base-T Ports

The 12 fixed 10Base-T ports allow for the connection of 10Base-T Ethernet devices. See "10Base-T Ports" on page 2-9 for more information.

### Management Connections

The Console port can be used for out-of-band management of the IntraSwitch. See "Out-of-Band Management" on page 4-4 for information.

### Asanté MII Expansion Slot

The Asanté Media Independent Interface (Asanté MII) expansion slot allows for the addition of various access modules, including: 10/100TX, 100Base-FX, or 10Base-FL. See "Asanté MII Ports" on page 2-10 for more information.

### Redundant Power Supply Connector

The redundant power connection can be used to connect to an Asanté external RPSU 6000 redundant power supply (sold separately). The RPSU 6000 provides the IntraSwitch with power in the event that the switch's main power connection fails. Refer to the RPSU 6000's Installation Guide for more information or to Appendix C in this manual for part number information.

### Power Switch

The power switch turns the IntraSwitch 5212 on or off. See "Connecting Power" on page 2-8 for instructions on powering on the IntraSwitch.

### Power Supply Connector

The 110/220-volt power supply connector provides the IntraSwitch 5212's power connection. See Appendix C, "Technical Specifications" for more information.

## Configuration/ Management

The IntraSwitch 5212 can be managed through standard out-of-band sessions through the Console port, via in-band Telnet sessions, via a supported World Wide Web browser, or via any SNMP-based management software program (such as IntraSpection™).

### Console/Telnet Management

The SNMP (Simple Network Management Protocol) is used to manage the IntraSwitch 5212. The SNMP agent supports database objects that are defined in the following Management Information Bases (MIBs):

- MIB II (RFC 1213)
- Bridge MIB (RFC 1493)
- RMON, 4 groups (RFC 1757)

The SNMP agent can be accessed via out-of-band Console connections or through in-band Telnet sessions. See Chapter 4, "Setting Up For Management" for information on connecting via one of these two methods.

See Appendix B, "Supported MIBs" for more information on the MIBs supported by the IntraSwitch.

### Web Browser Management

The IntraSwitch 5212 has a built-in HTTP (Hypertext Transfer Protocol Server) which allows it to be managed via any supported World Wide Web browser.

See the Web Management Server Reference Guide for information on accessing and managing the IntraSwitch 5212 with a Web browser.

### SNMP-Based Management

IntraSpection Web-based network management software, along with any other SNMP-based network management application, can be used to manage the IntraSwitch 5212. See "In-Band Management" on page 4-6 for more information.

## Switching Capacity

Each 10Base-T port forwards Ethernet minimum-sized 64-byte packets at the maximum attainable rate of 14,880 packets per second (pps). The 10/100 port can forward 64-byte packets at 148,000pps.

The IntraSwitch 5212 fully supports the 802.1d transparent Ethernet bridging standard. IEEE 802.1d compliance provides automatic address learning, packet filtering, and the Spanning Tree Protocol.

## Features

The IntraSwitch 5212 has the following features:

- 12 10Base-T switched ports with RJ-45 connectors
- One fixed 10/100TX port with an RJ-45 connector (supports NWay™ auto-negotiation)
- One Asanté MII expansion slot for adding an optional 10/100TX, 100Base-FX, or 10Base-FL uplink port
- Telnet (in-band) and Console (out-of-band) management
- HTTP server (provides SNMP management via any supported World Wide Web browser; see the Web Management Server Reference Guide for information)
- Support of up to 1024 MAC addresses
- Auto-negotiation on 10/100 port and 10/100 Asanté MII expansion port
- Full duplex support on all ports
- BootP support (Asanté View BootP Server only)
- TFTP support for software upgrades
- RMON support (4 groups)
- MIB II, Bridge MIB support
- 802.1d Spanning Tree support
- Advanced diagnostic LEDs

## Package Contents

The IntraSwitch 5212 is shipped with the following items:

- (1) IntraSwitch 5212 Ethernet switch
- (2) rack-mounting brackets
- (12) standard Phillips screws for attaching the rack-mounting brackets to the IntraSwitch 5212 and mounting it to an equipment rack
- (1) power cord
- (1) User's Manual (this book)
- (1) Quick Installation Guide

**▲ Important!** If you are missing any of the above items, contact the dealer from whom you purchased your IntraSwitch.

### Tools and Materials

Some tools and materials that are not supplied with the IntraSwitch 5212 are needed to connect the switch to an Ethernet network.

The table below lists the tools and materials required for connecting devices to the switch's ports, for installing an Asanté MII module, and for rack-mounting the switch.

Δ *Note:* For specific instructions on connecting network devices to the IntraSwitch 5212, see "Connecting to the Network" on page 2-9.

Table 1-1 Tools and Materials Required

Action	Tool/Material Required
Connecting 10Base-T ports or 10/100 port	Standard Category 3, 4 or 5 UTP straight-through cable with RJ-45 connectors. Standard Category 5 UTP cross-over cable with RJ-45 connectors.
Connecting 100Base-FX port (optional MII expansion module)	Dual 62.5/125 micron graded-index multimode fiber optic cable fitted with an SC connector.
Connecting 10Base-FL port	Dual 62.5/125 micron graded-index multimode fiber optic cable fitted with a dual ST connector.
Connecting to the Console port	Straight-through RS-232 cable with 9-pin male D-subminiature connector.
Removing Asanté MII expansion module's cover	Small Phillips screwdriver.
Rack-mounting the IntraSwitch 5212	Phillips screwdriver (#2) for mounting the two rack brackets on the unit.

## Pin Assignments

The following diagrams, based on the IEEE 568B standards, can be used to assist in connecting the IntraSwitch 5212 to an Ethernet network.

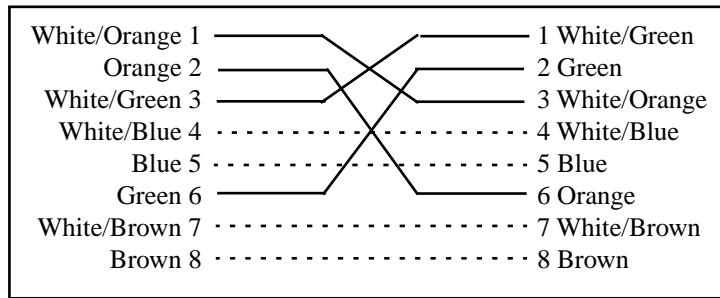


Figure 1-2 Category 5 UTP Crossover Pin assignment: Switch to Hub or another Switch

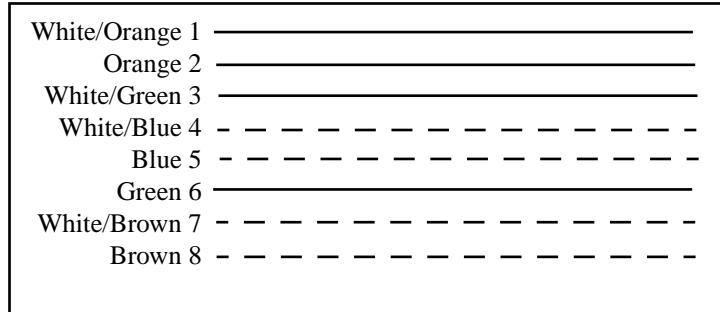


Figure 1-3 Category 5 UTP Pin assignment: Switch to Workstation

### Factory Defaults

The IntraSwitch 5212 is shipped with the following configuration default settings:

Table 1-2 Factory Default Configurations

Configuration	Default Setting
IP address	0.0.0.0 Important! The first IP address that is assigned to the IntraSwitch becomes the new factory default setting.
Subnet Mask	0.0.0.0 Important! The first subnet mask that is assigned to the IntraSwitch becomes the new factory default setting.
Default Gateway	0.0.0.0 Important! The first default gateway address that is assigned to the IntraSwitch becomes the new factory default setting.
Switching Mode	Store-and-forward
10Base-T Ports	Half duplex
10/100TX Port and Asanté MII Expansion Port	Auto-negotiation
Spanning Tree	Enabled on ALL ports

▲ **Important!** When the IntraSwitch 5212 is reset (powered off and then on), all settings are returned to the factory defaults listed above except for the IP Address, Subnet Mask, and Default Gateway; these items revert to the first addresses assigned to them.

# 2

## Installation

This chapter explains how to power on the IntraSwitch 5212, install it in an equipment rack, and connect it to your network.

It also explains how to install an Asanté MII expansion module and prepare the IntraSwitch 5212 for management capabilities.

This chapter contains the following sections:

- Installation Guidelines — page 2-2
- Installation Overview — page 2-3
- Rack Mounting/Desktop Placement — page 2-4
- Installing an Asanté MII Module — page 2-6
- Connecting Power — page 2-8
- Connecting to the Network — page 2-9
- Setting up for Management — page 2-12

# Installing the IntraSwitch

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## Installation Guidelines

Before installing the IntraSwitch 5212, carefully review the following guidelines.

### Power Requirements

The source electrical outlet should be installed near the IntraSwitch 5212, be easily accessible, and be properly grounded.

Make sure the power source adheres to the following guidelines:

- Voltage range:** 100 to 240 VAC
- Frequency range:** 60/50 Hz
- Maximum current:** 1.6 A

### Environmental Requirements

The IntraSwitch 5212 must be installed in a clean, dry, dust-free area with adequate air circulation to maintain the following environmental limits:

- Temperature:** 0° to 45° C
- Relative Humidity:** 5% to 85% non-condensing

Avoid direct sunlight, heat sources, or areas with high levels of electro-magnetic interference.

### Cooling and Airflow

The IntraSwitch 5212 has two internal fans that cool the interior by drawing air through vents on the sides and forcing heated air out through holes in the rear.

**▲ Important!** Do not restrict air flow by covering or obstructing air vents on the sides of the case.

# Installation Overview

The table below describes the steps needed to install the IntraSwitch 5212. The steps that are optional are labeled “optional”; the steps that are required are labeled “required.” The sections that follow explain each step in detail.

## To install the IntraSwitch 5212:

Table 2-1 Installation Overview

Step	Action
1 (required)	Open the box and check the contents. See “Package Contents” on page 1-7 for a complete list of the items included with your IntraSwitch 5212.
2 (required)	Install the IntraSwitch 5212 in an equipment rack or prepare it for desktop placement. See “Rack Mounting/Desktop Placement” on page 2-4.
3 (optional)	Install an Asanté MII expansion module. See “Installing an Asanté MII Module” on page 2-6.
4 (required)	Plug in and check the power connection. See “Connecting Power” on page 2-8.
5 (required)	Connect the IntraSwitch 5212 to the network. See “Connecting to the Network” on page 2-9.
6 (optional)	Configure the IntraSwitch 5212 for management capabilities. See “Setting up for Management” on page 2-12.

## Rack Mounting/ Desktop Placement

### Equipment Rack Installation

The IntraSwitch 5212 can be installed in most standard 19-inch equipment racks. It can also be placed on a horizontal surface with support capabilities of 11 pounds (5 kilograms).

To install the IntraSwitch 5212 in an equipment rack:

- ▲ **Important!** Disconnect all cables from the IntraSwitch 5212 before continuing.
- 1** Place the IntraSwitch 5212 on a stable, flat surface.
- 2** Locate a rack-mounting bracket (supplied) and place it over the mounting holes on one side of the unit, as shown in Figure 2-1.



Figure 2-1 Mounting rack bracket on the IntraSwitch 5212

- 3** Insert the four screws (supplied) into the holes and tighten with a Phillips screwdriver.
- 4** Repeat the two previous steps for the unit's other side.
- 5** Place the IntraSwitch 5212 in an equipment rack.
  - ▲ **Important!** Make sure the IntraSwitch 5212 is supported until all four mounting screws for each bracket are installed.
- 6** Secure with mounting screws.  
The IntraSwitch 5212 is now installed in the rack.

Free-Standing  
Installation

The IntraSwitch 5212 has four rubber feet applied to the bottom of its chassis that enable desktop/free-standing installation of the unit.

For desktop/free-standing installation:

- Place the IntraSwitch 5212 on a horizontal surface with a minimum area of 17.1" x 14.5" and support capabilities of 11 pounds.

### Installing an Asanté MII Module

The IntraSwitch 5212 has one Asanté Media Independent Interface (Asanté MII) expansion slot which allows for the addition of various types of media access modules, including:

- 10/100Base-TX
- 100Base-FX
- 10Base-FL (with ST connector)

The Asanté MII module is sold separately and complies with IEEE 802.3 and 802.3u (10/100Base-T and 100Base-FX) specifications.

To install an Asanté MII module:

**▲ Important!** The Asanté MII module is not hot-swappable; you should not install and/or remove a module without turning the IntraSwitch 5212's power off.

- 1 Unscrew the metal cover from the front of the Asanté MII expansion slot (located on the IntraSwitch 5212's back panel) using a small Phillips screwdriver. See Figure 2-2.

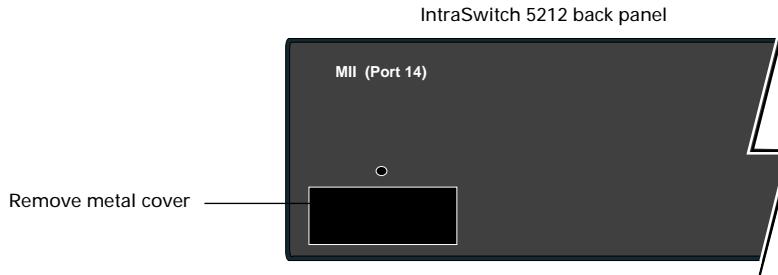


Figure 2-2 Asanté MII expansion slot

- 2 Align the bottom of the Asanté MII expansion module with the rails on the inside of the expansion slot.

**3** Slide the Asanté MII module into the expansion slot until it stops, then push the module in until it seats with the connector. See Figure 2-3.

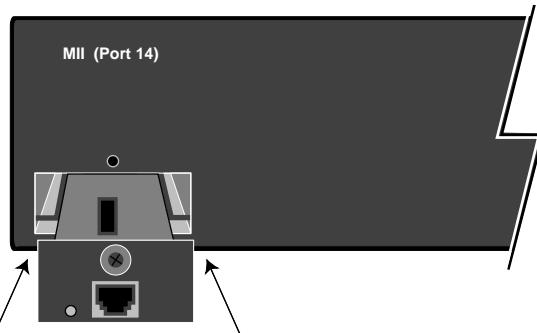


Figure 2-3     Installing an Asanté MII expansion module

**4** Screw the module into place by tightening the thumbscrew on the module's cover.



Figure 2-4     Securing an Asanté MII expansion module

**5** Connect the installed Asanté MII expansion module to your network, following the cable guidelines in "Asanté MII Ports" on page 2-10.

For more information on Asanté MII expansion modules, refer to the Asanté MII Expansion Modules Installation Guide included with your module.

## Connecting Power

To connect power to the IntraSwitch 5212:

- 1 Plug one end of the supplied power cord into the power connector on the back of the IntraSwitch 5212.

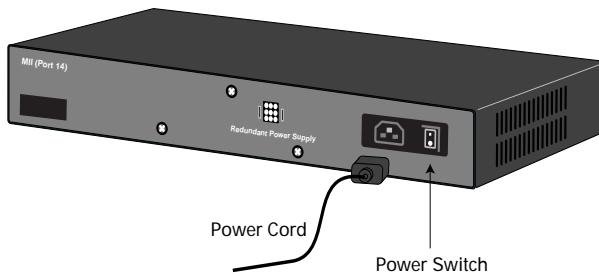


Figure 2-5 Connecting the power cord to the IntraSwitch 5212

- 2 Plug the other end of the power cord into a grounded AC outlet.

Δ *Note:* For more information about power and environmental requirements, see Appendix C, "Technical Specifications."

- 3 Turn the power switch to the "on" position. Make sure the IntraSwitch 5212's front panel LEDs blink and the POWER LED lights and remains on.

▲ **Important!** If the power does not come on, refer to Appendix A, "Troubleshooting."

- 4 Turn the IntraSwitch 5212's power off. The IntraSwitch 5212 is ready to be connected to the network.

## Connecting to the Network

To connect the IntraSwitch 5212 to an Ethernet network:

- 1 Make sure the IntraSwitch 5212 is powered off.
- 2 Connect network devices to the IntraSwitch 5212, following the cable guidelines outlined below.
- 3 Power on the IntraSwitch 5212.

After the IntraSwitch 5212 is connected to the network and is powered on, it can be configured for management capabilities (see "Setting up for Management" on page 2-12). For cabling examples, see Figure 2-7.

### 10Base-T Ports

Table 2-2 10Base-T Cable Guidelines

Connecting To	Cable Required
Network Station	Category 3, 4, or 5 UTP (Unshielded Twisted Pair) straight-through cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub	Category 5, UTP cross-over cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub's Uplink port	Category 3,4 or 5, UTP straight-through cable (100 meters maximum) with RJ-45 connectors.

### 10/100TX Port

Table 2-3 10/100TX Port Cable Guidelines

Connecting To	Cable Required
Network Station	Category 5 UTP straight-through cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub	Category 5, UTP cross-over cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub's Uplink port	Category 5, UTP straight-through cable (100 meters maximum) with RJ-45 connectors.

## Installation

Asanté MII Ports

**The Asanté MII expansion slot allows for the connection of a 10/100TX, 100Base-FX, or 10Base-FL port.**

10/100TX Module

Table 2-4 10/100TX Asanté MII Module Cable Guidelines

Connecting To	Cable Required
Network Station	Category 5 UTP cross-over cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub	Category 5, UTP straight-through cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub's Uplink port	Category 5, UTP cross-over cable (100 meters maximum) with RJ-45 connectors.

100Base-FX Module

Table 2-5 100Base-FX Asanté MII Module Cable Guidelines

Connecting To	Cable Required
All network devices	Dual 62.5/125 micron graded-index multimode fiber-optic cable with an SC connector.

10Base-FL Module

Table 2-6 10Base-FL Asanté MII Module Cable Guidelines

Connecting To	Cable Required
ST Connector All Network Devices	Dual 62.5/125 micron graded-index multimode fiber-optic cable with a dual ST connector.

### Cabling Scenarios Diagram

The following diagram illustrates some of the various cabling scenarios available with the IntraSwitch 5212.

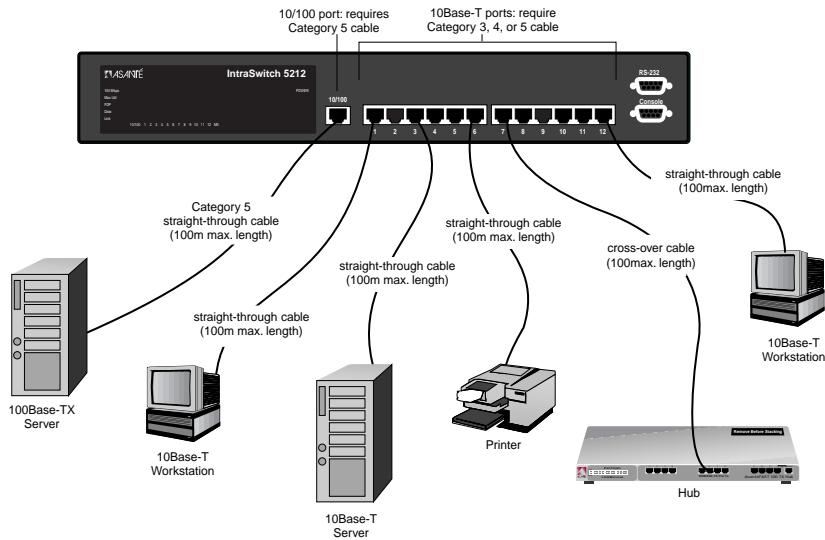


Figure 2-7 IntraSwitch 5212 cabling scenarios

## Setting up for Management

### BootP Configuration

To use the IntraSwitch 5212 as a managed switch, it must be configured with an IP address. This can be accomplished in one of two ways:

- automatically using Asanté View BootP (default) server
- manually via the Console port

The IntraSwitch 5212 is shipped with BootP/TFTP support. BootP allows the IntraSwitch 5212 to be automatically configured with an IP address when the switch is connected to the network and is powered on, if your network contains a BootP server configured with available IP addresses.

▲ **Important!** BootP configuration only works if the IntraSwitch 5212 does not have an IP address assigned to it. By default, it is shipped without an assigned IP address.

- 1 Make sure your network has a BootP server configured with a valid IP address entry for the IntraSwitch 5212.
- 2 When the IntraSwitch 5212 is connected to the network and is powered on, it automatically transmits a BootP request across the network (up to 5 times) until it receives a valid IP address from the BootP server .
- 3 After an IP address is received, the IntraSwitch 5212 can be managed via in-band access. See Chapter 4 for information on connecting to the IntraSwitch 5212 for management.

To verify that the IntraSwitch 5212 received an IP address, use a tool such as Ping<sup>1</sup> to try and access the IntraSwitch 5212; if you can access the IntraSwitch 5212, it is properly configured with an IP address.

### Console Configuration

To manually configure the IntraSwitch 5212 with an IP address via its Console port, use a VT100 terminal or a VT100 terminal emulator running on a workstation or personal computer (PC) to connect to the switch's Local Management Interface.

- 1 Using a straight-through RS-232 cable with a 9-pin male D-subminiature plug at one end, connect a terminal or workstation (PC) running a terminal emulator to the Console port on the front of the IntraSwitch 5212.

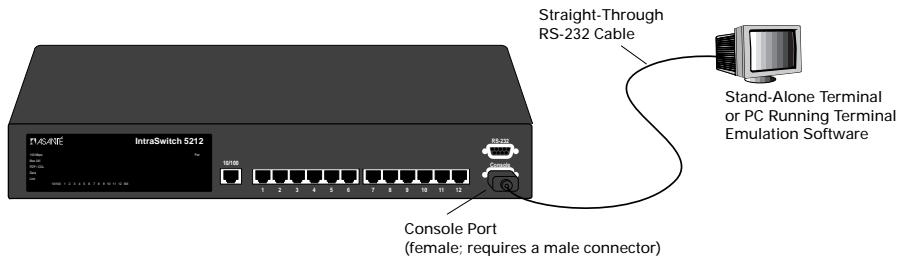


Figure 2-8 Connecting to the Console port

- 2 Make sure both units are powered on. If using a PC with a terminal emulator, make sure it is configured with the following terminal settings:

- Bits Per Second: 9600
- Data Bits: 8
- Parity: None

---

1. Ping (an acronym for packet internet groper) is an application that can be used to test whether a remote device is properly connected to a network.

- Stop Bits: 1
- Flow Control: None

If configuring with a Macintosh computer, please call Asanté Technical support for proper DIN 8 – DB-9 cable.

**3** The IntraSwitch 5212's Local Management Interface Main Menu appears on the terminal screen, as shown in Figure 2-9.



Figure 2-9 IntraSwitch Local Management Interface Main Menu

**4** Type **c** to open the Configuration Menu. The “Enter Password” prompt appears.

**5** Type your password at the prompt.

▲ **Important!** The default password is **Asante**. The password is case-sensitive. For information on changing the password, see “Setting Console Password” on page 5-34.

**6** Type **i** to open the TCP/IP Parameter Menu.

**7** Type **i** to select the option “Set IP Address.”

**8** Type the valid IP address to be assigned to the IntraSwitch 5212 at the prompt. This address becomes the new factory default setting.

▲ **Important!** Depending on your network configuration, you may also need to set subnet mask and default router (gateway) information for the IntraSwitch 5212. See "Configuring TCP/IP Parameters" on page 5-12.

9 Press Return.

10 Type q to return to the Configuration Menu.  
The IntraSwitch 5212 is configured with an IP address.



# 3

## LED Indicators

This chapter describes the front panel layout of the IntraSwitch 5212 and explains how to interpret the LEDs.

This chapter contains the following sections:

- LED Indicators — page 3-2
- Port LEDs — page 3-3
- Power LED — page 3-4
- Diagnostic LEDs — page 3-4

# LED Indicators

---

The IntraSwitch 5212 has five rows of LEDs on its front panel that convey the status of each 10Base-T port as well as the status of the 10/100TX port and Asanté MII expansion port (if installed). See Figure 3-1.

The five rows of port LEDs display:

- 100 Mbps operation
- Max Util (maximum utilization)
- FDP/COL (full duplex or collision)
- Data
- Link

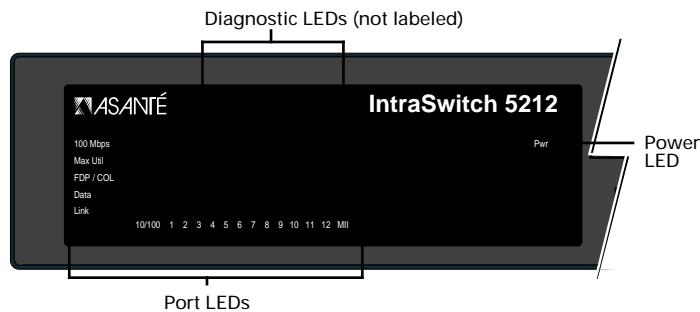


Figure 3-1 IntraSwitch LED panel

The IntraSwitch 5212 also has four diagnostic LEDs that are not labeled on its front panel. They light once when the IntraSwitch 5212 is first powered on or is reset. See "Diagnostic LEDs" on page 3-4 for more information.

▲ **Important!** The diagnostic LEDs are not labeled on the IntraSwitch 5212's front panel.

## Port LEDs

When the IntraSwitch is first powered on, the port and diagnostic LEDs blink. The green power light illuminates and remains on, indicating electrical power to the unit.

The IntraSwitch 5212 has five rows of LEDs. The following table states their color and meaning:

Table 3-1 Port LEDs

LED	Color	Meaning
100Mbps	green	<p>10/100TX port or an installed Asanté MII expansion port is operating at 100Mbps speed.</p> <p>Note: These LEDs only function with ports capable of operating at 100Mbps speed (i.e., the 10/100TX port or an installed 10/100 Asanté MII module).</p>
Max Util	amber	<p>The corresponding port's receive buffer is full (maximum utilization).</p> <p>Note: It is normal to see these LEDs light when the network is in a state of moderate-to-heavy activity.</p>
FDP/Col	amber	<p>Indicates full duplex mode on the 10/100TX port or on an installed Asanté MII expansion port.</p> <p>Indicates a collision at the switching port for those ports operating in half-duplex mode.</p> <p>Note: Full duplex means that a port can transmit and receive at the same time.</p> <p>Note: Collision is indicated only on those ports operating in half duplex mode.</p>
Data	green	<p>Traffic activity is occurring on the port (transmit [TX] or receive [RX]).</p> <p>Note: During heavy traffic periods, this LED may be lit continuously.</p>
Link	green	A node or other network device is properly connected to the corresponding port.

## LED Indicators

**Power LED** The green POWER light comes on and stays on when the unit is receiving electrical power.

**Diagnostic LEDs** The IntraSwitch's four diagnostic LEDs (one orange, three green) blink once when the switch is first powered on.

▲ **Important!** If the diagnostic LEDs illuminate for any length of time other than during a power cycle, contact Asante Technical support (see Appendix E, "Technical Support").

# 4

## Setting Up For Management

This chapter describes the different management options available with the IntraSwitch 5212. It also explains how to connect to the IntraSwitch 5212 using those options.

This chapter contains the following sections:

- ❑ Overview — page 4-2
- ❑ Management Scenarios — page 4-3
- ❑ Out-of-Band Management — page 4-4
- ❑ In-Band Management — page 4-6

# IntraSwitch Management

---

## Overview

The IntraSwitch 5212 can be managed using any of the following methods:

Table 4-1 Management Options

Method	Type	Description
Console	out-of-band management	local connection to the IntraSwitch via the switch's Console port
Telnet (one session)	in-band management	remote connection over the network to the IntraSwitch via a terminal emulation program
World Wide Web browser	in-band management	remote connection to the IntraSwitch 5212 via a supported World Wide Web browser
SNMP-based Network Management Software	in-band management	remote connection to the IntraSwitch via any SNMP-based network management application such as IntraSpection

This chapter describes how to connect to the IntraSwitch 5212 using either out-of-band or in-band management, as illustrated in Figure 4-1.

For information on each management method, refer to the following:

- Console or Telnet management** — see Chapter 5, "Console Management" in this manual.
- World Wide Web browser management** — see the Web Management Server Reference Guide.
- SNMP-based Network Management Software** — see the section on "SNMP-based Management Software" on page 4-7.

## Management Scenarios

The following diagram illustrates the management options available with the IntraSwitch 5212.

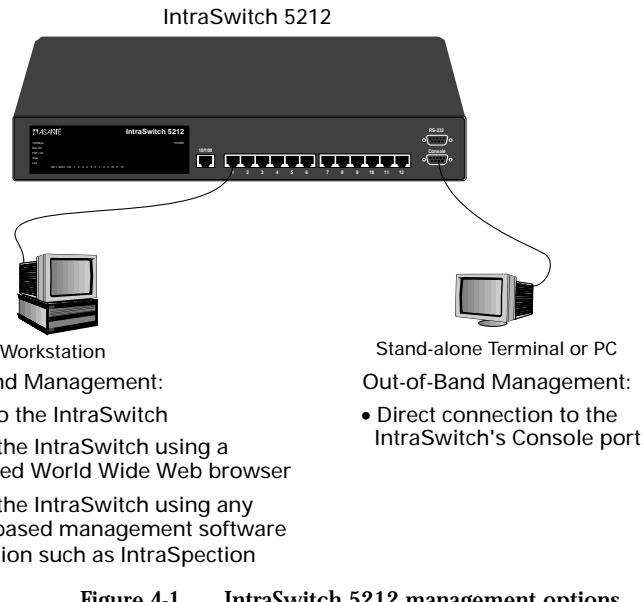


Figure 4-1 IntraSwitch 5212 management options

## Out-of-Band Management

Out-of-band network management allows you to configure, manage, and monitor the IntraSwitch 5212 and each of its ports. You can perform these functions via the following method:

- By attaching a terminal (or a terminal emulator) to the IntraSwitch 5212's Console port and using the menu-driven Local Management Interface.

Out-of-band network management is guaranteed even when the in-band Ethernet network is down.

To access the IntraSwitch 5212's Local Management Interface using out-of-band management:

- 1** Connect a stand-alone terminal or a PC running a terminal emulator directly to the IntraSwitch 5212's Console port using a straight-through RS-232 serial cable with a male connector.

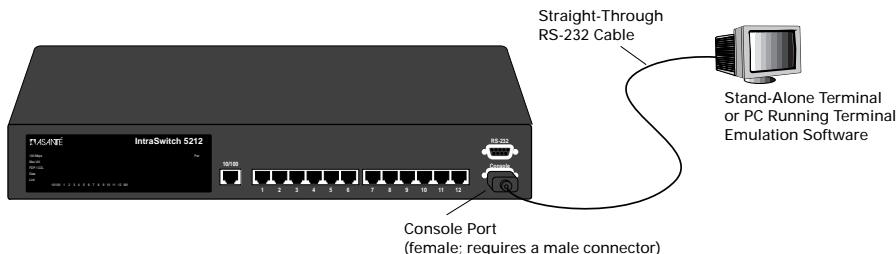


Figure 4-2 Connecting to the Console port

- 2** Make sure both units are powered on. If using a PC with a terminal emulator, make sure it is configured with the following terminal settings:

- Bits Per Second: 9600
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

If configuring with a Macintosh computer, please call Asanté Technical support for proper DIN 8 – DB-9 cable.

3 Once connected, the Local Management Interface Main Menu appears on the screen.

```
=====
Asante IntraSwitch Local Management Version 1.0
Copyright (c) 1997 Asante Technologies, Inc.
=====

Main Menu

<Cmd>      <Description>
g          General Information
c          Configuration
s          Statistics

Command>
```

See Chapter 5, “Console Management,” for information on using the Local Management Interface to manage the IntraSwitch 5212.

△ *Note:* A password is needed to access the Configuration menu. The default password is Asante. The password is case-sensitive; enter it exactly as shown.

## In-Band Management

In-band network management allows you to manage, control, and monitor the IntraSwitch 5212 and each of its ports over the Ethernet network.

You can perform these functions by accessing the IntraSwitch via one of the following methods:

- By connecting with a terminal emulation program such as Telnet<sup>1</sup> and using the Local Management Interface.
- By connecting with a World Wide Web browser and using the Web Management Interface.
- By connecting with any SNMP-based network management application and using its interface.

To manage the IntraSwitch 5212 via in-band management:

- 1** Make sure the network to which the IntraSwitch 5212 is connected is up and functioning.
- 2** Make sure the IntraSwitch 5212 is configured with valid IP information.  
See "Setting up for Management" on page 2-12.
- 3** Connect to the IntraSwitch 5212 with a terminal emulator or any SNMP-based network management application.

Terminal Emulator

See Chapter 5, "Console Management" for information on managing the IntraSwitch 5212 with a terminal emulator.

Δ *Note:* All management screens using a terminal emulator are identical to those of the out-of-band Console interface.

---

1. Telnet is a common terminal emulation application used in TCP/IP networks for remote terminal access to network devices.

Web Browser Management

**See the Web Management Server Reference Guide for information on managing the IntraSwitch 5212 with a Web browser.**

SNMP-based Management Software

**Refer to the software's User's Manual for information on managing the IntraSwitch 5212 with SNMP-based management software.**



# 5

## Console Management

This chapter describes how to manage the IntraSwitch 5212 using the out-of-band Console or in-band Telnet interface.

This chapter contains the following sections:

- ❑ Overview — page 5-2
- ❑ Management Tasks — page 5-3
- ❑ Local Management Interface — page 5-5
- ❑ General Information Menu — page 5-6
- ❑ Configuration Menu — page 5-7
- ❑ Statistics Menu — page 5-37

# Console Management

---

## Overview

The IntraSwitch 5212's Local Management Interface is a menu-driven application that provides for management and configuration of the IntraSwitch 5212 and each of its ports.

You can access the Local Management Interface via two methods:

- Out-of-band connection to the Console port
- In-band connection via a terminal emulator such as Telnet (one session)

**▲ Important!** Refer to Chapter 4, "Setting Up For Management" for instructions on how to connect to the Local Management Interface using one of the two methods listed above.

This chapter describes each menu item within the Local Management Interface, as well as how to perform the configuration and management tasks outlined in Tables 5-1 and 5-2.

## Configuration and Management Tasks

Table 5-1 Configuration Tasks

Configuration Task	Page #
Logging into the Configuration Menu	page 5-7
Changing System Administration Information	page 5-11
Changing TCP/IP Information	page 5-13
Setting Community Strings	page 5-19

## Console Management

Table 5-2 Management Tasks

Management Task	Page #
Performing a Software Upgrade	page 5-16
Enabling Trap Authentication	page 5-19
Adding a Trap Receiver	page 5-20
Deleting a Trap Receiver	page 5-20
Enabling or Disabling a Port	page 5-24
Configuring Full Duplex	page 5-24
Configuring Auto-Negotiation	page 5-25
Finding an Entry in the MAC Forwarding Table	page 5-27
Setting the Age-Out Timer	page 5-28
Enabling/Disabling Spanning Tree on ALL Ports	page 5-31
Enabling/Disabling Spanning Tree on a Single Port	page 5-31
Setting the Telnet Idle Time-Out Period	page 5-33
Changing the Console Password	page 5-34
Resetting the EEPROM	page 5-35
Resetting the IntraSwitch 5212	page 5-36

# Local Management Interface

After you connect to the IntraSwitch 5212's Local Management Interface using either out-of-band Console or in-band Telnet connection as described in Chapter 4, the Main Menu appears, as shown in Figure 5-1.

## Main Menu



Figure 5-1 Local Management Interface Main Menu

From the Main Menu, you can access three submenus:

- "General Information Menu" on page 5-6
- "Configuration Menu" on page 5-7
- "Statistics Menu" on page 5-37

If you are using Telnet, a fourth option will be available — Close Connection. This option closes your remote connection to the IntraSwitch's Local Management Interface.

### Accessing a Submenu

To access a submenu, type the command letter of the corresponding option (e.g., type **g** for General Information).

### Exiting a Submenu

To exit a submenu, type **q**. To exit a command line (e.g., Set Console Password in the Configuration Menu), press **ctrl-c**.

△ **Note:** For a one-page map of the Main Menu and its submenus, refer to Appendix D, "Console Management Menu."

## General Information Menu

The General Information Menu displays the IntraSwitch 5212's current operating information; such as, the IntraSwitch 5212's name, IP address, and boot information.

△ *Note:* The information displayed on this screen is read-only.

### Accessing the General Information Menu

- Type **g** from the Main Menu. A screen similar to Figure 5-2 appears.



Figure 5-2 General Information Menu

▲ **Important!** For a description of each parameter on the General Information Menu, see "General Information Menu Parameters" on page 6-3.

To exit the General Information Menu, press the space bar on your keyboard.

## Configuration Menu

The Configuration Menu allows you to configure settings for the IntraSwitch 5212. These settings include items such as system administration information, TCP/IP parameters, RMON parameters, port parameters, and bootstrap parameters.

### Logging into the Configuration Menu

- 1** From the Local Management Interface Main Menu, type **c**.
- 2** Type your password at the “Enter Password” prompt.
  - ▲ **Important!** The default password when you first access the Configuration Menu is **Asante**. The password is case-sensitive.
  - For information on changing passwords, see on “Setting Console Password” on page 5-34.

The following Configuration Menu appears.

```
Configuration Menu

<Cmd>      <Description>
a      Config System Administration Information
i      Config TCP/IP Parameters
b      Config Bootstrap Parameters
n      Config SNMP Parameters
p      Config Port Parameters
m      Config RMON Parameters
f      Config MAC Forwarding Table Parameters
s      Config Spanning Tree Parameters
v      Config VLAN
t      Set Telnet Idle Time-out
c      Set Console Password
e      Reset EEPROM To Default
q      Exit Configuration Menu

Command> _
```

Figure 5-3 Configuration Menu

**3** From this menu you can access configuration sub-menus by typing the command letter of the corresponding menu option (e.g., type **a** for the Configure System Administration Information Menu).

Table 5-2 provides a brief overview of each menu item.

Table 5-2 Configuration Menu Items

Menu Item	Description
Config System Administration Information	Displays and allows you to change the name, location, and contact information for the IntraSwitch 5212. See "Configuring System Administration Information" on page 5-10.
Config TCP/IP Parameters	Displays and allows you to change the information needed to access the IntraSwitch 5212 over the network (in-band management). See "Configuring TCP/IP Parameters" on page 5-12.
Config Bootstrap Parameters	Displays and allows you to change the parameters used for downloading a new version of software for the IntraSwitch 5212. See "Configuring Bootstrap Parameters" on page 5-14.
Config SNMP Parameters	Displays and allows you to change the IntraSwitch 5212's SNMP (Simple Network Management Protocol) parameters; such as, read/write settings, trap authentication, and trap receivers. See "Configuring SNMP Parameters" on page 5-17.
Config Port Parameters	Allows you to manually configure each of the IntraSwitch 5212's ports for speed, connection, link mode, and auto-negotiation. For more information, see "Configuring Port Parameters" on page 5-21.
Config RMON Parameters	Displays and allows you to change the IntraSwitch 5212's RMON parameters. See "Configuring RMON Parameters" on page 5-26.

Menu Item	Description
Config MAC Forwarding Table Parameters	Allows you to change the entries in the IntraSwitch 5212's MAC Forwarding Table. See "Configuring MAC Forwarding Table Parameters" on page 5-26.
Config Spanning Tree Parameters	Displays the IntraSwitch 5212's Spanning Tree parameters and allows you to enable or disable Spanning Tree. See "Configuring Spanning Tree Parameters" on page 5-29.
Config VLAN	Allows you to set up a Virtual LAN and move ports to it. See Web Management Server Reference Guide.
Set Telnet Idle Time-out	Allows you to set the amount of time a Telnet connection can remain idle and still connected to the IntraSwitch 5212. For more information, see "Setting Telnet Idle Time Out" on page 5-33.
Set Console Password	Allows you to change the password needed to access the Configuration Menu. See "Setting Console Password" on page 5-34.
Reset EEPROM To Default	Allows you to reset the IntraSwitch 5212's EEPROM to its factory default settings. For more information, see "Resetting EEPROM to Default" on page 5-35.
Exit Configuration Menu	Exits the Configuration Menu and returns you to the Local Management Interface Main Menu.

## Configuring System Administration Information

This menu displays and allows you to change the name, location, and contact information for the IntraSwitch.

To access the System Administration Information Menu, type a from the Configuration Menu.

The following menu appears.

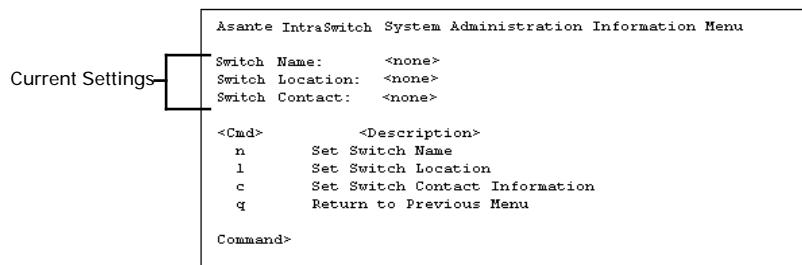


Figure 5-4 System Administration Information Menu

### Current Settings

Table 5-3 explains each setting on the System Administration Information Menu.

For information on using this menu, see:

- "Changing System Administration Information" on page 5-11

Table 5-3 System Administration Information Settings

Setting	Description
Switch Name	The name of the IntraSwitch (up to 64 characters, including spaces).
Switch Location	The location where the IntraSwitch is physically located (up to 64 characters, including spaces).
Switch Contact	The name of the person responsible for the IntraSwitch (up to 64 characters, including spaces).

Changing System Administration Information

To change the IntraSwitch 5212's name/location/contact information:

**1** Open the System Administration Information Menu by typing **a** in the Configuration Menu.

**2** Type the command letter of the corresponding menu item in the System Administration Configuration Menu.

**3** Type the information at the prompt.  
See Table 5-3 for a description of each parameter.

▲ **Important!** Each parameter is limited to 64 characters (including spaces).

To cancel a selected option, press **ctrl-c** at the command prompt.

**4** Press **Return**.

The IntraSwitch 5212's system administration information is changed.

To quit and return to the Configuration Menu, type **q**.

### Configuring TCP/IP Parameters

This menu displays and allows you to change the information needed to access the IntraSwitch 5212 over the network (in-band management).

To access the TCP/IP Parameter Menu, type **i** from the Configuration Menu. The following menu appears.

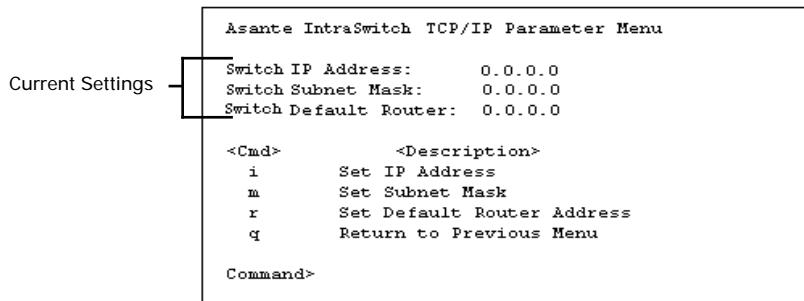


Figure 5-5 TCP/IP Parameter Menu

△ **Note:** By default, each parameter is set to 0.0.0.0.

#### Current Settings

Table 5-4 explains each setting on the TCP/IP Parameter Menu.

For information on using the menu, see:

- "Changing TCP/IP Information" on page 5-13

Table 5-4 TCP/IP Parameter Settings

Setting	Description
Switch IP Address	The IntraSwitch's IP (Internet Protocol) address.
Switch Subnet Mask	The subnet mask of the network on which the IntraSwitch is located.
Switch Default Gateway	The address of the IntraSwitch's default gateway.

Changing TCP/IP Information

To change the switch's IP address, subnet mask, or default gateway information:

- 1 Open the TPC/IP Parameter Menu by typing **i** in the Configuration Menu.
- 2 Type the command letter of the option you want to change.
- 3 Type the new address at the prompt.  
See Table 5-4 for a description of each parameter.

▲ Important! Follow the format:  
*number. number. number. number.*

To cancel a selected option, press **ctrl-c** at the command prompt.
- 4 Press **Return**.  
The IntraSwitch 5212's TCP/IP information is changed.  
To quit and return to the Configuration Menu, type **q**.

## Configuring Bootstrap Parameters

This menu displays and allows you to change the bootstrap parameters used for downloading a new version of software when one is issued.

To access the Bootstrap Parameters Menu, type **b** from the Configuration Menu. The following menu appears.

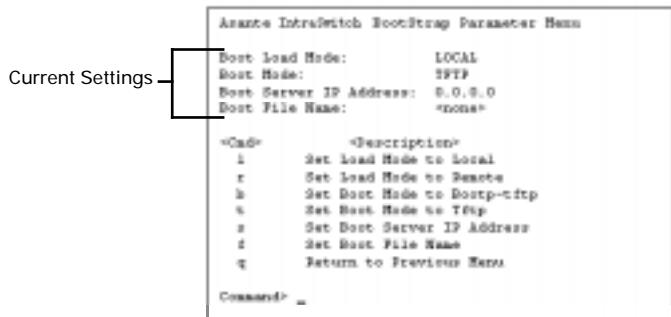


Figure 5-6    BootStrap Parameter Menu

▲ **Important!** The IntraSwitch 5212's default Load Mode setting is Local.

Normally, the bootstrap parameter settings never need to be changed except when downloading a new version of the IntraSwitch 5212's software.

### Current Settings

Table 5-5 explains each setting on the Bootstrap Parameter Menu.

For information on using the menu, see:

- "Performing a Software Upgrade" on page 5-16

## Configuring Bootstrap Parameters

Table 5-5 Bootstrap Parameter Settings

Setting	Description
Set Load Mode to Local	Executes the software image file from the IntraSwitch 5212's internal flash memory (default setting).  Important! This is the IntraSwitch 5212's default setting.
Set Load Mode to Remote	Loads a new software image file from a server on the network.  Important! To use this option, you must select BootP-TFTP or TFTP as the Boot Mode.
Set Boot Mode to Bootp-tftp	Sets the IntraSwitch 5212 to request an IP address from a BootP server and download the software image file through TFTP.  Important! To use this option, the IntraSwitch 5212's IP address must be set to 0.0.0.0 and the Load Mode must be set to Remote.
Set Boot Mode to TFTP	Sets the IntraSwitch 5212 to only download the software image file through TFTP (an IP address is not requested).  Important! To use this option, the IntraSwitch 5212 must already have an assigned IP address and the Load Mode must be set to Remote.
Set Boot Server IP Address	Sets the IP address of the remote server providing BootP/TFTP capabilities on your network.
Set Boot File Name	Sets the software image file name and network path.

### Performing a Software Upgrade

When Asanté issues a new version of the software image for the IntraSwitch 5212, you can obtain it from Asanté's World Wide Web site or by contacting Asanté's Technical Support (see Appendix E, "Technical Support").

The software file must be downloaded from a management station on your network, such as AsantéView. These instructions explain how to perform a software upgrade on the IntraSwitch 5212 from AsantéView.

To upgrade the IntraSwitch's software from AsantéView:

- 1** Make sure the switch is configured with an IP address, and that the AsantéView; tftp server is running.
- 2** Open the BootStrap Parameter Menu by typing **b** in the Configuration Menu.
- 3** Type **r** to set the Boot Load Mode to Remote.
- 4** Type **t** to set the Boot Mode to TFTP.
- 5** Type **s** and set the Boot Server IP address.
- 6** Type **f** and set the name and network path for the new software image file; for example:

`c:\AV\ISwitch.cfg`

- 7** Make sure the following two files are in the Boot server's directory:

`ISwitch.cfg`

`5212.10x`

- 8** Type **q** to return to the Configuration Menu.
- 9** Reset the switch by powering the switch off and then on.

## Configuring SNMP Parameters

This menu controls the IntraSwitch 5212's SNMP (Simple Network Management Protocol) parameters.

With these parameters, you can configure the IntraSwitch 5212's read and write community strings, set the IntraSwitch 5212 to generate authentication traps, and determine which management stations on your network can receive traps.

To access the SNMP Parameter Menu, type **n** from the Configuration Menu. The following menu appears.

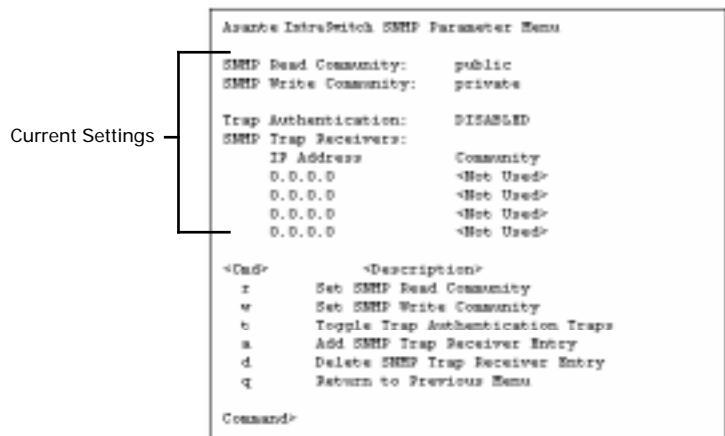


Figure 5-7     SNMP Parameter Menu

### Current Settings

Table 5-6 explains each setting on the SNMP Parameter Menu.

For information on using the menu, see:

- "Changing Community Strings" on page 5-19
- "Enabling Traps" on page 5-19
- "Adding a Trap Receiver Entry" on page 5-20
- "Deleting a Trap Receiver Entry" on page 5-20

## Console Management

Table 5-6 SNMP Parameter Settings

Setting	Description
SNMP Read Community	<p>The IntraSwitch 5212's SNMP read community string.</p> <p>The read community string is a single word that defines access rights for reading SNMP data objects.</p> <p>The default setting is public.</p>
SNMP Write Community	<p>The IntraSwitch 5212's SNMP write community string.</p> <p>The write community string is a single word that defines access rights for writing SNMP data objects.</p> <p>The default setting is private.</p>
Trap Authentication	<p>The status of the SNMP agent to generate authentication traps.</p> <p>Note: An authentication trap is sent when a network management station with an invalid community string attempts to access the IntraSwitch 5212.</p> <p>The default setting is disabled.</p>
SNMP Trap Receivers	<p>The IP addresses of the network management stations that can receive traps. Normally, these addresses are the same as your network management software systems' IP address(es).</p> <p>Important! A maximum of four trap receivers is allowed.</p>

### Changing Community Strings

To change the IntraSwitch 5212's community strings:

- 1 Open the SNMP Parameter Menu by typing **n** in the Configuration Menu.
- 2 Type **r** to change the read community string or **w** to change the write community string.
- 3 Type a new community string at the prompt. To cancel a selected option, press **ctrl-c** at the command prompt.
- 4 Press **Return**.  
The IntraSwitch 5212's community strings are configured.

### Enabling Traps

The IntraSwitch 5212 is set up to generate authentication traps. Authentication traps are messages sent across the network to an SNMP network management application when a network station with an invalid community string attempts to access the IntraSwitch 5212. To set the IntraSwitch to generate these traps:

- 1 Open the SNMP Parameter Menu by typing **n** on the Configuration Menu.
- 2 Type **t** on the SNMP Parameter Menu to toggle trap authentication from enabled to disabled.
- 3 Enter at least one trap receiver entry. (See "Adding a Trap Receiver Entry" on page 5-20)  
The IntraSwitch 5212 is enabled to generate authentication traps.

- Δ *Note:* If there is an entry in the trap receiver table of an IP address for any component connected to the 5212 IntraSwitch, other traps will be generated. These include traps for cold starts (when power is cycled off and on or the plug is unplugged and reconnected), link ups (when a component is plugged into a port or a link is established), and link downs (when you unplug a component from a port or lose a link).

### Adding a Trap Receiver Entry

Trap receivers are the management stations designated to receive traps from the IntraSwitch 5212 when they occur.

- Δ *Note:* The maximum number of trap receivers that can be added is four.

To add a trap receiver entry:

- 1 Open the SNMP Parameter Menu by typing **n** in the Configuration Menu.
- 2 Type **a** to add an SNMP trap receiver entry.
- 3 Type the IP address of the network management station you want to receive traps.  
To cancel a selected option, press **ctrl-c** at the command prompt.
- 4 Press **Return**.  
The trap receiver entry is added.

### Deleting a Trap Receiver Entry

To delete a trap receiver entry:

- 1 Open the SNMP Parameter Menu by typing **n** on the Configuration Menu.

- 2 Type **d** to delete an SNMP trap receiver entry.
- 3 Type the IP address of the receiving network station entry to be deleted.
- 4 Press  
The trap receiver entry is deleted.

## Configuring Port Parameters

This menu allows you to manually configure each of the IntraSwitch 5212's ports for speed, connection, link mode, and auto-negotiation.

The default parameters for each 10Base-T port are:

- auto-negotiation — disabled
- port speed — 10Mbps
- link mode — half duplex

The default parameter for the 10/100TX port and an installed 10/100TX or 100Base-FX Asanté MII expansion port is:

- auto-negotiation — enabled (auto-negotiates to 10 or 100Mbps half duplex)

To access the Port Parameter Menu, type **p** from the Configuration Menu. The following menu appears.



Figure 5-8 Port Parameter Menu

The Port Parameter menu displays statistics for one port at a time. The current port for which statistics are displayed is shown at the top of the screen (next to "Port Number:").

- Ports 1 – 12** — each 10Base-T port.
- Port 13** — the 10/100TX port.
- Port 14** — the installed Asanté MII expansion module.

### Current Settings

Table 5-7 explains each setting on the Port Parameter Menu. For information on using the Port Parameter Menu, see:

- "Enabling/Disabling a Port" on page 5-24
- "Configuring Full Duplex" on page 5-24
- "Configuring Auto-Negotiation" on page 5-25

Table 5-7 Port Parameter Settings

Setting	Description
Port Number	The number of the port for which information is displayed.
Port Connection	The administrative status of the port's connection (enabled or disabled)  Note: If the port is disabled, the port will not receive any packets, even if the port's Link Status is ON.
Link Status	The status of the port. Displays On if a network device is properly connected to the selected port and is powered on; displays Off if there is no network device connected to the port.
Port Auto-Negotiation Ability	The auto-negotiation ability of the selected port.
Port Speed	Manually determines the speed of the selected port. The 10Base-T ports are only capable of transmitting at 10Mbps; the 10/100TX port and an installed Asanté MII module (except 10Base-FL) can be set to transmit at 100Mbps.  Important! If you manually change the port speed on a port, auto-negotiation for the port is automatically disabled.
Link Mode	The port's link mode (either half or full duplex).  Note: You can set any of the IntraSwitch 5212's ports (including any of the 12 10Base-T ports) to full duplex mode.

### Enabling/Disabling a Port

The enabling or disabling of a port is a manual operation that can be used to isolate network devices possibly causing problems on the network or to prevent unauthorized use of a port or station.

To enable or disable a port:

- 1** Open the Port Parameter Menu by typing **p** on the Configuration Menu.
- 2** Select the port to be enabled or disabled by typing **l** and entering the port's number.
  - Δ *Note:* The 10/100TX port is port number 13, the Asanté MII port is port number 14.
- 3** Type **c** to toggle the port's connection to enabled or disabled, as desired.

### Configuring Full Duplex

Full duplex mode allows a port to transmit and receive at the same time.

To configure for full duplex mode:

- 1** Open the Port Parameter Menu by typing **p** on the Configuration Menu.
- 2** Select the port to be configured for full duplex mode by typing **l** and entering the port's number.
  - Δ *Note:* The 10/100TX port is port number 13, the Asanté MII port is port number 14.
- 3** Type **f** to toggle the port's mode to half or full duplex, as desired.  
The port's mode is displayed at the top of the screen.

Δ *Note:* If you are using full duplex mode with a Macintosh, be sure to use an Asanté driver with full duplex support. Improper duplex negotiation may result in very slow performance.

### Configuring Auto-Negotiation

Auto-negotiation is an optional feature of the Fast Ethernet standard that allows two devices on a common segment to communicate their capabilities, allowing the devices to determine their highest common speed and best communication parameters.

#### Options Negotiated

- Ethernet type (100Base-TX Fast Ethernet or 10Base-T Ethernet)
- Duplex mode (half or full)

To configure the 10/100TX port or an installed 10/100 Asanté MII module for auto-negotiation:

▲ **Important!** Only the 10/100TX port and 10/100 Asanté MII port are capable of auto-negotiation.

- 1 Open the Port Parameter Menu by typing **p** on the Configuration Menu.
- 2 Select the 10/100TX port or 10/100 Asanté MII port to be configured for full duplex mode by typing **l** and entering the port's number.

Δ *Note:* The 10/100TX port is port number 13, the Asanté MII port is port number 14.

3 Type a to toggle the port's auto-negotiation status to **enabled** or **disabled**, as desired.

The port's auto-negotiation ability is changed.

The auto-negotiation status is displayed at the top of the screen.

## Configuring RMON Parameters

This menu allows you to view and configure RMON (remote monitoring) information.

Δ *Note:* RMON is a standard for monitoring and reporting network activity using remote monitors. It allows a management system to remotely monitor the IntraSwitch 5212 for diagnostic purposes.

See Appendix B, "Supported MIBs" for a detailed description of each group of RMON that is supported by the IntraSwitch 5212.

▲ **Important!** See Chapter 7, "Advanced Management," for information on using RMON.

## Configuring MAC Forwarding Table Parameters

This menu allows you to view and search for addresses in the IntraSwitch 5212's MAC Forwarding Table.

The IntraSwitch 5212 checks the source and destination addresses as packets pass through it and records the information in the table. The IntraSwitch 5212 uses the information in this table to decide whether a frame should be forwarded or filtered.

Δ *Note:* The IntraSwitch 5212's MAC address table holds a maximum of 1024 entries.

## Configuring MAC Forwarding Table Parameters

To access the MAC Forwarding Table Parameters Menu, type **f** from the Configuration Menu. The following menu appears.



Figure 5-9 MAC Forwarding Table Parameters Menu

### Current Settings

Table 5-8 explains the setting on the MAC Forwarding Table Parameter Menu.

For information on using the MAC Forwarding Table Parameter Menu, see:

- "Finding an Entry in the MAC Forwarding Table" on page 5-27
- "Setting the Age Out Timer" on page 5-28

Table 5-8 MAC Forwarding Table Parameter Setting

Setting	Description
Age Out Timer	The number of seconds an address remains in the table after it is learned by the IntraSwitch 5212.

Finding an Entry in the MAC Forwarding Table  
To find an entry in the MAC Forwarding Table:

- 1** Open the MAC Forwarding Table Menu by typing **f** on the Configuration Menu.
- 2** Type **f** to find an entry.
- 3** Enter the MAC address you want to locate at the prompt.

**4**

**Press Return.**

If the address is found within the table, it is displayed along with the port number.

If the address is not found, the message “No Such Entry” is displayed.

### Setting the Age Out Timer

To set the MAC Forwarding Table’s Age-out Timer:

**1**

Open the MAC Forwarding Table Menu by typing **f** on the Configuration Menu.

**2**

Type **s** to set the timer.

**3**

Enter the number of seconds you want the addresses to remain in the table.

Δ *Note:* The default is 300 seconds.

**4**

**Press Return.**

The MAC Forwarding Table’s Age-out Timer is configured.

## Configuring Spanning Tree Parameters

This menu allows you to view the IntraSwitch 5212's Spanning Tree parameters. It also allows you to enable or disable Spanning Tree on all of the switch's ports or on a single port.

By default, the IntraSwitch 5212 is shipped with Spanning Tree enabled on all ports.

**▲ Important!** You should be familiar with the IEEE 802.1d specification before attempting to change these Spanning Tree parameters.

To access the Spanning Tree Parameter Menu, type **s** from the Configuration Menu. The following menu appears.

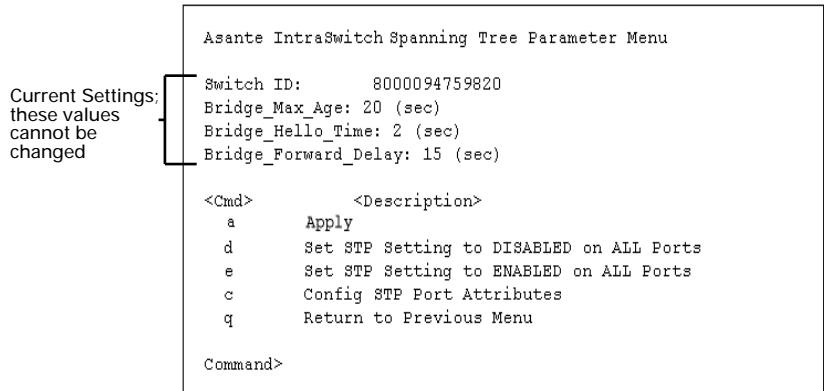


Figure 5-9 Spanning Tree Parameters Menu

### Current Settings

Table 5-9 explains each setting on the Spanning Tree Parameter Menu.

For information on using the menu, see:

- "Enabling/Disabling Spanning Tree on ALL Ports" on page 5-31
- "Enabling/Disabling Spanning Tree on a Single Port" on page 5-31

## Console Management

Table 5-9 Spanning Tree Parameter Settings

Setting	Description
Switch ID	The identification number of the IntraSwitch 5212. This value cannot be changed.
Bridge Max Age	The Maximum Age timer; determines how long the IntraSwitch 5212 retains information received from BPDU (bridging Protocol Data Unit) packets. The default value is 20 seconds. This value cannot be changed.
Bridge Hello Time	The Hello timer; controls the frequency at which the IntraSwitch 5212 sends a BPDU or "hello" packet. BPDU packets provide information to the Spanning Tree bridges about the configuration of the Spanning Tree network. The default value is 2 seconds. (This causes the switch to broadcast a BPDU packet every two seconds.) This value cannot be changed.
Bridge Forward Delay	The number of seconds a bridge must wait before it changes a link from a listening state to a learning state and before it changes the link from a learning state to a forwarding state. The default value is 15 seconds (this means that after a link [or the entire IntraSwitch 5212] goes down and connectivity is re-established, the IntraSwitch 5212 waits approximately 30 seconds [twice the default value] before it begins to forward traffic again). This value cannot be changed.

## Configuring Spanning Tree Parameters

Enabling/Disabling Spanning Tree on ALL Ports  
To enable or disable Spanning Tree on all ports:

1 Open the Spanning Tree Parameter Menu by typing **s** on the Configuration Menu.

2 Type **d** to disable Spanning Tree on all ports; type **e** to enable Spanning Tree on all ports.

To cancel the request, type **ctrl-c**.

3 Type **a** on the Spanning Tree Parameters Menu to apply the configuration.

The Spanning Tree status is displayed at the top of the menu next to STP Status.

Enabling/Disabling Spanning Tree on a Single Port

To enable or disable Spanning Tree on an individual port:

1 Open the Spanning Tree Parameter Menu by typing **s** on the Configuration Menu.

2 Type **c** to open the Config STP Port Attributes Menu.

Figure 5-12 is an example of the Spanning Tree Port Parameter Menu.



Figure 5-12 Spanning Tree Port Parameters Menu

- 3 Select the port number you want to enable or disable Spanning Tree on by typing **I** on the Port Parameter Menu and entering the port number at the prompt.
  - Δ *Note:* The 10/100TX port is port number 13, the installed Asanté MII module is port number 14.
- 4 Press **Return**.
- 5 Type **e** to enable Spanning Tree on the port; type **d** to disable Spanning Tree on the port.
- 6 Type **q** to exit this menu and return to the Spanning Tree Parameter Menu.
- 7 Type **a** to apply the changes.
  - ▲ **Important!** The change will not take effect until **Apply** is selected from the Spanning Tree Parameter Menu.

## Setting Telnet Idle Time Out

This option sets the Telnet idle time-out period.

If a Telnet connection to the IntraSwitch 5212 remains idle for the number of specified time-out minutes, the remote Telnet connection to the IntraSwitch 5212 is automatically disabled.

To set the Telnet Idle Time Out period:

**1** Type **t** from the Configuration Menu.

The following two lines appear at the bottom of the screen.

```
Current idle time = 20 minute(s)
Enter Idle Time in Minutes (0 means no time-out):
```

Figure 5-13 Set TelNet Idle Time Out command line

The current idle time is displayed in minutes.

**2** Enter the number of minutes for the time-out period at the prompt.

Δ *Note:* The default, recommended time-out period is **20** minutes.

To exit this option without making any changes to the current idle time-out period, press **ctrl-c**.

**3** Press **Return**.

The IntraSwitch 5212's Telnet idle time-out setting is configured.

▲ **Important!** Only one Telnet or HTTP Management session should be active at a time. Please close sessions when finished.

## Setting Console Password

This option sets the IntraSwitch 5212's Console password. The Console password is the password needed to access the Local Management Interface's Configuration Menu.

▲ **Important!** The default password is Asante.

To change the current Console password:

**1** Type c from the Configuration Menu.

The following command line appears at the bottom of the screen.

```
Enter New Password (Max length is 20) >
```

Figure 5-14 Set Console Password command line

**2** Type a new password at the "Enter New Password" prompt.

▲ **Important!** The password is case sensitive.

The password must be a minimum of one character and a maximum of 20 characters in length. The password takes any ASCII code.

**3** Press Return.

**4** Type the new password again at the confirmation password prompt.

**5** Press Return.

The IntraSwitch 5212's Console password is changed.

## Resetting EEPROM to Default

This option resets the IntraSwitch 5212's EEPROM values to their factory default settings.

▲ **Important!** This procedure reverts all information to the factory default settings except for the IntraSwitch 5212's IP address, subnet mask, and default gateway.

See "Factory Defaults" on page 1-10 for a list of all the switch's factory default settings.

To reset the EEPROM:

- 1 Type **e** from the Configuration Menu.  
The following command line appears at the bottom of the Configuration Menu.

```
Are you sure you want to reset EEPROM to default? (y/n)
```

Figure 5-15 Reset EEPROM to Default command line

- 2 Type **y** to reset the EEPROM to default or **n** to cancel the reset.
- 3 Reset the IntraSwitch 5212 by manually turning its power off and then on again.  
The IntraSwitch 5212's EEPROM is reset to its factory default settings.

## Resetting the IntraSwitch 5212

To reset the IntraSwitch 5212:

- 1** Turn the IntraSwitch 5212's power switch to the off position.
- 2** Turn the IntraSwitch 5212's power switch to the on position.

The IntraSwitch 5212 is reset.

## Statistics Menu

The Statistics Menu displays current statistics for the IntraSwitch 5212 on a per-port basis.

### Accessing the Statistics Menu

To access the Statistics Menu:

- Type **s** from the Local Management Interface Main Menu.
- ▲ **Important!** See Chapter 7, “Status Monitoring and Statistics” for information on using the Statistics Menu.

## Console Management

# 6

## Status Monitoring and Statistics

This chapter describes how to view the IntraSwitch 5212's current operating information. It also explains how to gather statistics using the out-of-band Console or in-band Telnet interface.

This chapter contains the following sections:

- Viewing the Current Operating Information — page 6-2
- Viewing Statistics — page 6-5

# Monitoring the IntraSwitch 5212

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## Viewing the Current Operating Information

The IntraSwitch 5212's current operating information can be viewed by accessing the General Information Menu within the IntraSwitch 5212's Local Management Interface.

To view the IntraSwitch 5212's current operating information:

- 1 Access the IntraSwitch 5212's Local Management Interface.
  - Δ *Note:* See Chapter 4, "Setting Up For Management" for instructions on how to connect to the Local Management Interface.
- 2 Type **g** from the Main Menu. A screen similar to Figure 6-1 appears.

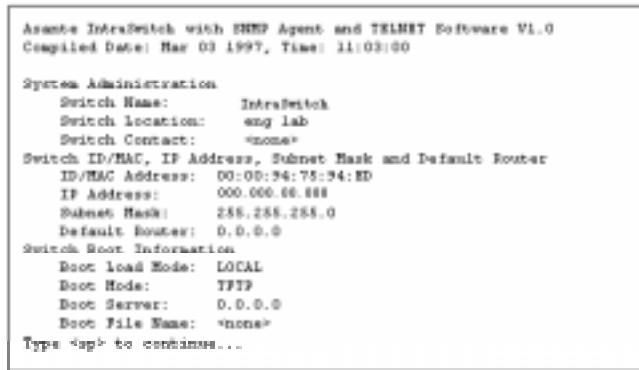


Figure 6-1 General Information Menu

Table 6-1 describes each parameter in the General Information Menu.

To exit the General Information Menu, press the space bar on your keyboard.

## Viewing the Current Operating Information

Table 6-1 General Information Menu Parameters

Setting	Description
Switch Name	The name of the IntraSwitch 5212.
Switch Location	The location of where the IntraSwitch 5212 is physically located.
Switch Contact	The name of the person responsible for the IntraSwitch 5212.
ID/MAC Address	The IntraSwitch 5212's hardware address.
IP Address	The IntraSwitch 5212's IP (Internet Protocol) address.
Subnet Mask	The address of the subnet to which the IntraSwitch 5212 belongs.
Default Router	The IP address of the IntraSwitch 5212's default gateway router.
Boot Load Mode	The origin of the device boot image file (a software file residing on hardware required by the IntraSwitch 5212 to operate on the network). Local — indicates the IntraSwitch 5212 is set to load the image file from its internal flash memory (default setting). Remote — indicates the IntraSwitch 5212 is set to download the image file from a remote boot server on the network.

## Status Monitoring and Statistics

Counter	Description
Boot Mode	<p>The boot mode used for downloading a new version of software for the IntraSwitch 5212.</p> <p>BootP-TFTP — sets the IntraSwitch 5212 to request an IP address from a BootP server and download the image file through TFTP.</p> <p>TFTP — sets the IntraSwitch 5212 to only download the image file through TFTP (does not request an IP address; the IntraSwitch 5212 must already be configured with an IP address to use this option).</p>
Boot Server	The remote boot server's IP address.
Boot File Name	The image file name and network path.

## Viewing Statistics

Viewing statistics on a regular basis allows you to evaluate your network's performance.

You can view current statistics for the IntraSwitch 5212 on a per-port basis by accessing the Statistics Menu in the Local Management Interface.

To view statistics:

- 1 Access the IntraSwitch 5212's Local Management Interface.
- Δ *Note:* See Chapter 4, "Setting Up For Management" for instructions on how to connect to the Local Management Interface.
- 2 Type s from the Main Menu. A screen similar to Figure 6-2 appears:

Asante IntraSwitch Port Statistic Counters				
Port: 1	Page : 1	Elapse Time: 00:00:00		
<Counter Name>	<Curr/s>	<Peak/s>	<Avg/s>	<Total>
GoodRXOctets	0	0	0	0
GoodRXFrames	0	0	0	0
RXBcasts	0	0	0	0
RXMCasts	0	0	0	0
RXCRCErrors	0	0	0	0
RXAlignErrors	0	0	0	0
RXOversize	0	0	0	0
RXJabbers	0	0	0	0
RXUndersize	0	0	0	0
RXFragments	0	0	0	0
Pkt64	0	0	0	0

*r>reset, s>stop, sl>select port, n>ext port, p>rev port, next page, q>quit*

Figure 6-2 Statistics screen (page one of two)

The Statistics screen displays one page of statistics at a time. To view the second page of statistics, type a for next page.

- Δ *Note:* For a description of each counter, see Table 4-1, "Statistics Counters Descriptions" on page 6-7.

## Status Monitoring and Statistics

### Selecting a Port

The current port for which statistics are displayed is shown at the top of the screen (next to Port:).

- Ports 1 – 12** — displays information for each 10Base-T port.
- Port 13** — displays information for the 10/100TX port.
- Port 14** — displays information for the Asanté MII expansion port.

To monitor another port:

- Type **n** to monitor the next port.
- Type **p** to monitor the previous port.
- Type **l** to select a port by entering the port number.

### Monitoring Counters

Each port is monitored in four columns:

- Current/per second**  
Displays the number of counter occurrences each second.
- Peak/per second**  
Displays the largest number of counter occurrences since opening or resetting the screen.
- Average/per second**  
Displays the average number of counter occurrences since opening or resetting the screen.
- Total**  
Displays the total number of counter occurrences since opening or resetting the screen.

### Resetting Statistics

- Type **r** to reset the counters to zero.

## Stopping Statistics

- Type **s** to stop polling for statistics.

## Exiting the Statistics Menu

- Type **q** to exit and return to the Local Management Interface Main Menu.

## Counter Descriptions

**Table 6-2 describes each counter that is monitored by the IntraSwitch 5212.**

Table 6-2 Statistics Counters Descriptions

Counter	Description
GoodRXOctets	The count of data and padding octets in frames that are successfully received.
GoodRXFrames	The total number of good packets (including unicast, broadcast packets, and multicast packets) received.
RXBcasts	The total number of good packets received that were directed to the broadcast address.
RXMcasts	The total number of good packets received that were directed to a multicast address (does not include packets directed to the broadcast address).
RXCRC Errors	A count of frames received on a particular interface that are an integral number of octets in length but do not pass the FCS (Frame Check Sequence) check.

## Status Monitoring and Statistics

Counter	Description
RXAlignErrors	For the 10Mbps ports, the counter records alignment errors. For the 100Mbps ports, the counter records the sum of alignment errors and code errors (frames received with rxerror signal).
RXOversize	The total number of packets received that were longer than 1518 octets in length (excluding framing bits, but including FCS octets) and were otherwise normal.
RXJabbers	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had either an FCS error or an alignment error.
RXUndersize	The total number of packets received with less than 64 octets (excluding framing bits, but including FCS octets) and were otherwise normal.
RXFragments	The total number of packets received that were not an integral number of octets in length or that had a bad FCS, and were less than 64 octets in length (excluding framing bits but including FCS octets).
Pkt64	The total number of packets (including error packets) received with 64 octets (excluding framing bits, but including FCS octets).
Pkt65-127	The total number of packets (including error packets) received that were between 65 and 127 octets in length (excluding framing bits, but including FCS octets).

Counter	Description
Pkt128-255	The total number of packets (including error packets) received that were between 128 and 255 octets in length (excluding framing bits, but including FCS octets).
Pkt256-511	The total number of packets (including error packets) received that were between 256 and 511 octets in length (excluding framing bits, but including FCS octets).
Pkt512-1023	The total number of packets (including error packets) received that were between 512 and 1023 octets in length (excluding framing bits, but including FCS octets).
Pkt1024-1518	The total number of packets (including error packets) received that were between 1024 and 1518 octets in length (excluding framing bits, but including FCS octets).
NetOctets	The total number of octets of data (including those in bad packets) received on the network (excluding framing bits but including FCS octets). This object can be used as a reasonable indication of Ethernet utilization.
SQEErrors	A count of times that the SQE TEST ERROR message is generated by the PLS sublayer for a particular interface. The SQE TEST ERROR is defined in section 7.2.2.2.4 of ANSI/IEEE 802.3 - 1985 and its generation in 7.2.4.6 of the same.
GoodTXOctets	A count of data and padding octets of frames that were successfully transmitted.

## Status Monitoring and Statistics

Counter	Description
GoodTXFrames	The total number of packets (including bad packets, broadcast packets and multicast packets) transmitted successfully.
STXCollision	(Single Collision TX Frames) A count of the successfully transmitted frames on a particular interface for which transmission is inhibited by exactly one collision.
MTXCollision	(Multiple Collision TX Frames) A count of the successfully transmitted frames on a particular interface for which transmission is inhibited by more than one collision.

# 7

## Advanced Management

This chapter describes how to manage the IntraSwitch 5212 using RMON via the out-of-band Console or in-band Telnet interface.

This chapter contains the following sections:

- ❑ RMON Overview— page 7-2
- ❑ Benefits of RMON — page 7-2
- ❑ Configuring RMON Parameters —  
page 7-3
  - ❑ RMON History Group — page 7-4
  - ❑ RMON Alarm Group — page 7-9
  - ❑ RMON Event Group — page 7-15

# Advanced Management

---

## RMON Overview

RMON stands for remote monitoring. It is a standard for monitoring and reporting network activity using remote monitors.

You can use RMON via the switch's Local Management Interface or via any SNMP-based network management software that supports RMON.

A typical RMON setup consists of two components:

- ❑ **The RMON probe** — a device or software agent that continually collects statistics about a LAN segment and transfers the information to a management workstation (either on request or when a pre-defined threshold is crossed).
- ❑ **The management workstation** — a network station that communicates with the RMON probe and collects statistics from it. The workstation does not have to be on the same network as the probe and can manage the probe by in-band or out-of-band connections.

## Benefits of RMON

Some of the benefits of using RMON are:

- ❑ **Improved efficiency** — you can remain at one workstation and collect information from widely dispersed LAN segments.
- ❑ **Productive management** — if configured correctly, RMON probes can deliver information before problems occur.
- ❑ **Reduces load on the network and the management station** — an RMON probe looks at the network on behalf of the network management station without affecting the characteristics and performance of the network.

## Configuring RMON Parameters

▲ **Important!** A knowledge of RMON is strongly recommended to configure these parameters.

To view and configure RMON parameters via the IntraSwitch 5212's Local Management Interface:

- 1 Access the IntraSwitch 5212's Local Management Interface.
  - Δ *Note:* See Chapter 4, "Setting Up For Management" for instructions on how to connect to the Local Management Interface.
- 2 Type **c** from the Main Menu.  
The "Enter Password" prompt appears.
- 3 Type your password at the prompt, then press **Return**.
- 4 Type **m** to open the RMON Parameters menu.  
The following menu appears:

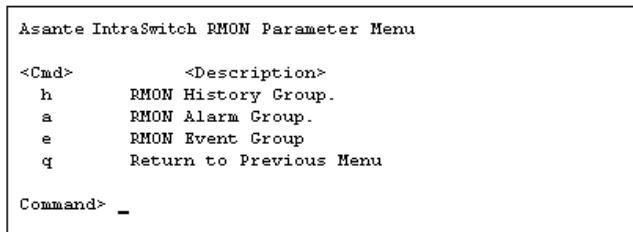


Figure 7-1 RMON Parameters Menu

From this menu you can access three submenus:

- "RMON History Group" on page 7-4
- "RMON Alarm Group" on page 7-9
- "RMON Event Group" on page 7-15

### RMON History Group

The History Group records periodic statistical samples from a network and stores them for later retrieval.

History provides segment statistics shown over time, with user-definable sampling rates and time intervals. This feature allows you to perform accurate trend analysis by displaying, adding, and/or deleting RMON History Group entries.

To access the RMON History Group menu, type **h** from the RMON Parameter Menu. The following menu appears.

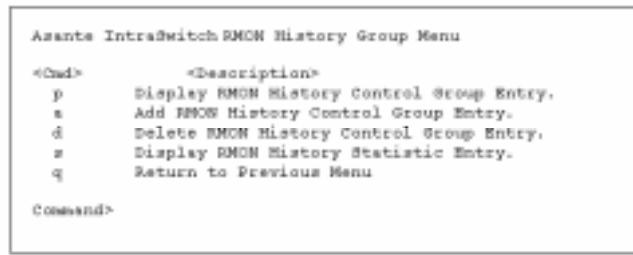


Figure 7-2 RMON History Group Menu

#### Adding an RMON History Control Group Entry

To add a History Control Group entry:

▲ **Important!** The maximum number of entries that can be added is 27.

You can add multiple entries (up to 27) on the same interface.

- 1 Type **a** from the RMON History Group menu. Command prompts, similar to those shown in Figure 7-3, appear one at a time on the screen.

## Adding an RMON History Control Group Entry

command prompts

```
Please Enter Data Source (Interface # 1 - 27) : 1
Please Enter Requested Buckets (1 - 10) : 5
Please Enter Sampling Interval (1 - 3600) (sec) : 10
Please Enter Owner String : Asante

The parameter of this RMON History Control entry is :
Interface Number : 1
Requested Buckets (1 - 10) : 5
Granted Buckets : 5
Sampling Interval (1 - 3600) (sec) : 10
Owner String : Asante

Are you sure you want to set these parameters? (y/n) ...
```

Figure 7-3 Add RMON History Control Group entry

2 Enter the information requested for each prompt, following the guidelines below.

Data Source (Interface Number)

Enter the number of the port for which statistics are to be gathered.

Requested Buckets

Enter the number of discrete time intervals over which data is to be saved. This number can be between 1 and 10.

Sampling Interval

Enter the interval (in seconds) over which the data is to be sampled for each bucket. This interval can be set to any number of seconds between 1 and 3600 (1 hour).

Owner String

Enter the name of the person who configured this entry. This value is used for tracking purposes; it can be any text or integer.

3 Type y at the prompt to set the parameters, or type n to cancel.

### Displaying an RMON History Control Group Entry

To display an RMON History Control Group entry:

▲ **Important!** There must be at least one History Control Group entry in the system in order to display information for an entry. To add a History Control Group entry, see "Adding an RMON History Control Group Entry" on page 7-4.

- 1 Type p from the RMON History Group menu.
- 2 Enter the number of the RMON History Group entry to be displayed.
- 3 Press Return.  
A screen similar to Figure 7-4 appears.

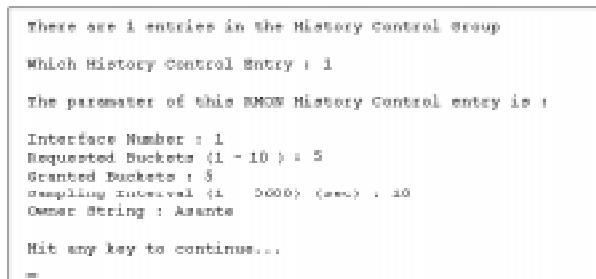


Figure 7-4 Display RMON History Control Group entry

Interface

The number of the port for which statistics are displayed.

Requested Buckets

The requested number of discrete time intervals over which data is to be saved. This number can be between 1 and 10.

## Displaying an RMON History Statistic Entry

## Granted Buckets

The number of discrete sampling intervals over which data shall be saved in the part of the media-specific table associated with this entry.

## Sampling Interval

The interval (in seconds) over which the data is sampled for each bucket.

Owner String

The person or entity who configured this entry.

## Displaying an RMON History Statistic Entry

To display statistics for a History Control Group entry:

- 1 Type s from the RMON History Group menu.
- 2 Type the number of the History Control Group entry you want to display statistics for at command prompt.

A screen similar to Figure 7-5 appears.

```
Wmsh History Control Entry = 1

Awards: DataBuckets Part: RMON History Counters
History Control Entry = 1
Interface = 1
Sampling Interval is SEC

<Counter Name> <Bucket 1> <Bucket 4> <Bucket 3> <Bucket 2>
Timestamp 1845 1833 1821 1811
DroppedPkts 0 0 0 0
Octets1 0 0 0 0
Pkts 0 0 0 0
BroadcastPkts 0 0 0 0
MulticastPkts 0 0 0 0
CRCAlignErrors 0 0 0 0
UndersizedPkts 0 0 0 0
OversizedPkts 0 0 0 0
Fragments 0 0 0 0
Jabbers 0 0 0 0
Collisions 0 0 0 0
Utilization 0 0 0 0

exit, quit
```

Figure 7-5 Display RMON History Statistic entry

The Local Management Interface can display only four buckets. To view more, use an SNMP-based management software program capable of RMON to access the RMON History Statistics.

The screen automatically updates at the set sampling interval.

- 3** Type **s** to stop the sampling interval.
- 4** Type **q** to return to the History Group menu.

**Deleting an RMON History Control Group Entry**

This option allows you to delete an RMON History Control Group entry.

To delete a History Control Group entry:

- 1** Type **d** from the RMON History Group menu.
- 2** Type the number of the History Control Group entry to be deleted at the command prompt.
- 3** Press **Return**.  
The History Control Group Entry to be deleted is displayed.
- 4** Type **y** to confirm the deletion, or **n** to cancel the deletion.

### RMON Alarm Group

The Alarm Group periodically takes statistical samples from variables and compares them to previously configured thresholds. The alarm table stores configuration entries, each of which defines a polling period and various threshold values.

▲ **Important!** The Alarm Group requires implementation of the Event Group. You must create an Event Group entry before you can add an Alarm Group entry. See "Adding an RMON Event Group Entry" on page 7-16 for instructions.

To access the RMON Alarm Group menu, type a from the RMON Parameter Menu. A screen similar to Figure 7-6 appears.

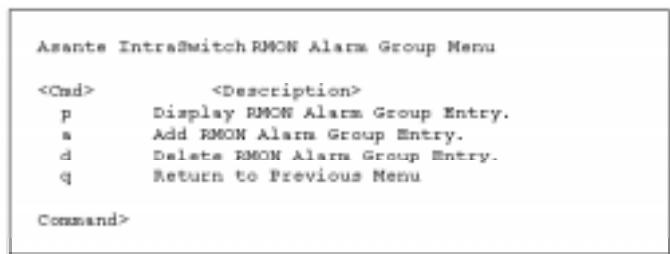


Figure 7-6 RMON Alarm Group Menu

### Adding an RMON Alarm Group Entry

To add an Alarm Group Entry:

▲ **Important!** The Alarm Group requires implementation of the Event Group. You must have an Event Group entry created BEFORE you can add an Alarm Group entry. See "Adding an RMON Event Group Entry" on page 7-16 for instructions.

- 1 Type a from the RMON Alarm Group Menu. Command prompts, similar to those shown in Figure 7-7, appear one at a time on the screen.

Command Prompts

```
Please Enter Sampling Interval (sec) : 10
Please Enter Data Source (OBJ ID): 1.3.6.1.2.1.2.2.1.10.1
Please Enter Sampling Type (1) absoluteValue, (2) deltaValue: 2
(1) rising alarm. (2) falling alarm. (3) rising | falling alarm.
Please Enter Startup Alarm : 1
Please Enter Rising Threshold : 1000
Please Enter Falling Threshold : 500
Please Enter Rising Event Index : 1
Please Enter Falling Event Index : 1
Please Enter Owner String : Asante
```

Figure 7-7 Add RMON Alarm Group entry

- 2 Enter the information requested for each prompt, following the guidelines below.

Sampling Interval

Enter the number (in seconds) for which data is to be sampled.

This value can be set to any number of seconds between 1 and 3600 (1 hour).

### Data Source (Obj ID)

Enter the Object ID of the counter to be monitored.

- ▲ **Important!** The Object ID for a counter is defined in the MIB with which it is associated (e.g., MIB II, RMON, etc).

Some counters require an interface number (the number of the port to be monitored) at the end of the object ID. See Figure 7-8.

For example, to monitor the RMON Ethernet Statistics Octets counter (etherStatsOctets), enter the following object ID number, directly followed by the number of the port to be monitored:

1.3.6.1.2.1.16.1.1.1.4.4

Object ID

### Interface (Port) Number

Figure 7-8 Object ID entry

### Sampling Type

Enter the method for sampling the selected Data Source.  
Options are:

- ❑ **absolute value** — the value of the Data Source is compared directly with the thresholds at the end of the sampling interval.
- ❑ **delta value** — the value of the Data Source at the last sample is subtracted from the current value, and the difference compared with the thresholds.

## Startup Alarm

Enter the type of alarm to be sent. Option are:

- ❑ **risingAlarm** — if the first sample exceeds or equals the value set for the Rising Threshold (see "Rising Threshold" on page 7-12), an alarm is generated.

- fallingAlarm** — if the first sample is less than or equal to the value set for the Falling Threshold (see “Falling Threshold” below), an alarm is generated.
- risingOrFallingAlarm** — sets both rising and falling alarms.

**Rising Threshold**

**Enter the number of the threshold for the sampled statistic.**

When the current sampled value is greater than or equal to this threshold, and the value at the last sampling interval was less than this threshold, a single event is generated.

**Falling Threshold**

**Enter the number of the threshold for the sampled statistic.**

When the current sampled value is less than or equal to this threshold, and the value at the last sampling interval was greater than this threshold, a single event will be generated.

**Rising Event Index**

**Enter the number of the Event entry that was created for this Alarm entry.**

This number references the Event entry that is to be utilized when a rising threshold is crossed. If there is no corresponding entry in the eventTable, or if this value is zero, no associated event will be generated.

**Falling Event Index**

**Enter the number of the Event entry that you created for this Alarm entry.**

This number references the Event entry that is to be utilized when a falling threshold is crossed. If there is no corresponding entry in the eventTable, or if this value is zero, no associated event will be generated.

**Owner String**

**Enter name of the person or entity who defined the entry.**

**3** Type y at the prompt to set the parameters.

## Displaying an RMON Alarm Group Entry

### Displaying an RMON Alarm Group Entry

To display information for a specific Alarm Group entry:

▲ **Important!** There must be at least one Alarm Group entry in the system in order to display information for an entry. To add an Alarm Group entry, see "Adding an RMON Alarm Group Entry" on page 7-10.

- 1 Type **p** from the RMON Alarm Group menu.
- 2 Enter the number of the Alarm Group entry to be displayed.
- 3 Press **Return**.

A screen similar to Figure 7-9 appears.

```
There are 1 entries in the Alarm Control Group
Which Alarm Control Entry : 1
The parameter of this RMON Alarm Control entry is :
Alarm Sampling Interval (sec) : 10
Alarm Variable : { 1. 3. 6. 1. 2. 1. 2. 2. 1. 10. 1. 0 }
Alarm Sample Type : deltaValue
Alarm Start Up : rising alarm
Alarm Rising Threshold : 10
Alarm Falling Threshold : 5
Alarm Rising Event Index : 1
Alarm Falling Event Index : 10
Owner String : Asante
Hit any key to continue...
```

Figure 7-9 Display RMON Alarm Group entry

△ **Note:** For a description of each parameter, see page 7-10 to 7-12.

**Deleting an RMON Alarm Group Entry**

**This option allows you to delete an Alarm Group entry.**

**To delete an Alarm Group entry:**

- 1** Type **d** from the RMON Alarm Group menu.
- 2** Type the number of the Alarm Group entry to be deleted at the command prompt.
- 3** Press **Return**.  
The Alarm Group entry to be deleted is displayed.
- 4** Type **y** to confirm the deletion, or **n** to cancel.

### RMON Event Group

The Event Group controls the generation and notification of events from the device. It provides a list of all the events (activities) created by the monitor.

▲ **Important!** An Event Group entry is associated with an Alarm Group entry.

An Alarm Group entry determines when an alarm should occur; the associated Event Group entry determines the action to occur when the alarm is triggered.

To access the RMON Event Group menu, type **e** from the RMON Parameter Menu. A screen similar to Figure 7-10 appears.

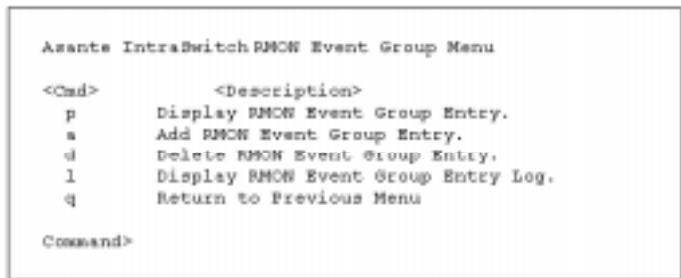


Figure 7-10 RMON Event Group Menu

### Adding an RMON Event Group Entry

This option allows you to add an Event Group entry.

To add an Event Group Entry:

- 1 Type a from the RMON Event Group Menu.  
Command prompts, similar to those shown in Figure 7-11, appear one at a time on the screen.

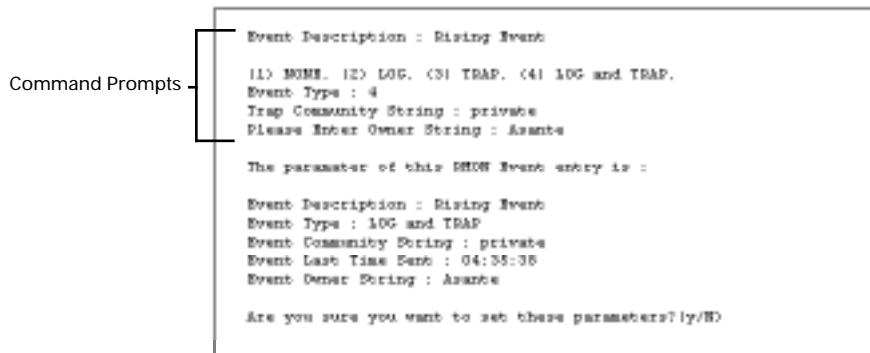


Figure 7-11 Add RMON Event Group entry

- 2 Enter the information requested for each prompt, following the guidelines below.

Event Description

Enter a description of the event.

Event Type

Enter the type of event to occur upon a threshold violation.  
Options are:

- none** — no action is taken.
- log** — records the alarm in the RMON Event Group Entry Log.
- trap** — sends a trap to the SNMP trap receiver (specified in the SNMP parameters menu).
- log and trap** — records the alarm and sends a trap to the SNMP trap receiver.

## Displaying an RMON Event Group Entry

Event Community String

Enter the octet string of the SNMP community to receive the event.

Event Owner String

Enter the name of the person who created this entry.

- 3 Type **y** at the prompt to set the parameters, or type **n** to cancel.

## Displaying an RMON Event Group Entry

To display an Event Group entry:

▲ **Important!** There must be at least one Event Group entry in the system in order to display information for an entry. To add an Event Group entry, see "Adding an RMON Event Group Entry" on page 7-16.

- 1 Type **p** from the RMON Event Group menu.
- 2 Enter the number of the RMON Event Group entry to be displayed.
- 3 Press Return.

A screen similar to Figure 7-12 appears.

```
There are 4 entries in the Event Group
Which Event Entry : 1
The parameter of this RMON Event entry is :
Event Description : Rising Event
Event Type : LOG and TRAP
Event Community String : private
Event Last Time Sent : 00:00:00
Event Owner String : Admin
Hit any key to continue...
```

Figure 7-12 Display RMON Event Group entry

Δ **Note:** For a description of each parameter, see page 7-16 to page 7-18.

Displaying the RMON Event Group Entry Log

This option allows you to display a log of recorded events that have occurred.

▲ **Important!** Only events with an Event Type of Log or Log and Trap are displayed.

To display the RMON Event Group Entry log:

- 1 Type 1 from the RMON Event Group menu.
- 2 Type the number of the Event Group entry for which you want to view information.

The log of events for that entry is displayed, similar to Figure 7-13.

```
There are 2 entries in the Event Group
Which Event Entry : 1

The log of Event Entry : 1

Log Entry : 1
    Log Time : 00:04:23
    Log Description : IntraSwitch 5224 Rising Event log.

End of Log Table !!
Press any key to continue!!
```

Figure 7-13 Display RMON Event Group entry log

Δ **Note:** If there are no events recorded for the entry, the message “End of Log Table!!” is displayed. Press **ctrl-c** to continue.

Deleting an RMON Event Group Entry

This option allows you to delete an Event Group entry.

To delete an Event Group entry:

- 1** Type **d** from the RMON Event Group menu.
- 2** Type the number of the Event Group entry to be deleted at the command prompt.
- 3** Press **Return**.  
The Event Group entry to be deleted is displayed.
- 4** Type **y** to confirm the deletion, or **n** to cancel.



## Troubleshooting

---

This section provides some diagnostic tips for troubleshooting problems with your network and the IntraSwitch 5212.

### LED Indicators

The following table describes some possible errors and solutions for troubleshooting problems via the IntraSwitch 5212's LEDs.

LED Error Type/Cause	Solution (Options or Steps)
Power LED does not come on when the power cord is connected to an outlet	<ul style="list-style-type: none"><li><input type="checkbox"/> AC power source is not operational.</li><li><input type="checkbox"/> Power cord not connected/faulty.</li><li><input type="checkbox"/> Internal power supply has failed.</li></ul> <ul style="list-style-type: none"><li><input type="checkbox"/> Check the AC power source.</li><li><input type="checkbox"/> Connect/replace the power cord.</li><li><input type="checkbox"/> If configured, ensure redundant DC power supply is connected and is operating (schedule time to return unit for repair).</li></ul>
Data LED for the port never comes on	<ul style="list-style-type: none"><li><input type="checkbox"/> Cable connection is broken or faulty.</li><li><input type="checkbox"/> Equipment to which the port is connected is not operating.</li></ul> <ul style="list-style-type: none"><li><input type="checkbox"/> Make sure the LINK LED is on; if the LINK LED is off, replace cable.</li><li><input type="checkbox"/> Make sure the device to which the port is connected is operating properly.</li></ul>

## Troubleshooting

LED Error Type/Cause	Solution (Options or Steps)
Max Util (maximum utilization) LED for the port never blinks (steady light)	<ul style="list-style-type: none"><li><input type="checkbox"/> Port is overloaded.</li><li><input type="checkbox"/> Check the port statistics for the amount of traffic, errors, etc. being transmitted on the port.</li></ul>
Link LED for the port goes off	<ul style="list-style-type: none"><li><input type="checkbox"/> Cable connection is broken.</li><li><input type="checkbox"/> Make sure connectors are seated correctly in the equipment at both ends of the cable. Check the continuity of the wires in the cable and the pin assignments on the RJ-45 connectors.</li><li><input type="checkbox"/> Network station to which the port is connected has been powered off.</li><li><input type="checkbox"/> Make sure the station to which the port is connected is plugged in and powered on.</li><li><input type="checkbox"/> Wrong type of cable is connected between the port and the equipment.</li><li><input type="checkbox"/> Make sure the correct type of cable is connected to the port (refer to "Connecting to the Network" on "Connecting to the Network" on page 2-9).</li></ul>

## Supported MIBs

---

The IntraSwitch 5212 supports the following MIBs (Management Information Bases):

- RMON (RFC 1757)
- MIB II (RFC 1213)
- Bridge MIB (RFC 1493)

This section describes each supported MIB and its groups.

### RMON (RFC 1757)

The IntraSwitch 5212 supports four groups of Remote Network Monitoring (RMON) MIB objects.

- Statistics
- History Group
- Alarm Group
- Event Group

△ *Note:* RMON is a standard for monitoring and reporting network activity using remote network monitoring devices (referred to as "monitors" or "probes.") RMON is designed to supplement the management information obtained and used by SNMP. For more information, refer to RFC 1757.

#### Statistics

The Statistics group contains statistics measured by the probe for each monitored interface on the device. These statistics take the form of free-running counters that start from zero when a valid entry is created.

The statistics group lists Ethernet statistic types (e.g., multicasts, fragments, collisions) and supplies a numerical counter of occurrences.

### History Group

The History group records periodic statistical samples from the collision domain and stores them in an SNMP table for later retrieval.

The History group allows the manager to set a timer to record samples of Ethernet statistics. It allows baselining of network activity over time.

Once samples are taken, the sample data is stored in an entry in a media-specific table. Each such entry defines one sample and is associated with the historyControl entry that caused the sample to be taken. The only media-specific table defined is the etherHistoryTable for Ethernet networks.

### Alarm Group

The Alarm group periodically takes statistical samples from variables and compares them to previously configured thresholds. The alarm table stores configuration entries, each of which defines a polling period and various threshold values.

If a monitored variable exceeds a threshold value, the switch generates an event. No more events are generated for that threshold until the opposite threshold is exceeded.

You can limit the generation of events via the MIB. When sampling a delta value, you can increase the precision of the sample by taking the sample twice per period and comparing the sum of the latest two samples to the threshold. This allows the switch to detect threshold crossings that span the sampling boundary. This does not require any special configuration of the threshold value.

This group requires the implementation of the Event Group.

### Event Group

The Event group controls the generation and notification of events from the switch.

Each entry in the eventTable describes the event's parameters that can be triggered. The switch generates an event when an associated condition is present in the MIB. The event can trigger a related function in the MIB.

Each eventEntry can specify that, when an event occurs, a log entry and an SNMP trap message is created for the event. The community for the SNMP trap message is contained in the associated eventCommunity object. The condition that triggers the event determines the enterprise and specific trap fields of the trap. If the eventTable is triggered by a condition specified elsewhere, the enterprise and specific trap fields must be specified for traps generated for that condition.

Data related to the control of the generation and notification of events from the selected device.

## MIB II (RFC 1213)

The IntraSwitch 5212 supports the following MIB II groups:

### System Group

The System group collects information about the switch and the network.

This group contains the following: a description of the system, the name of the organization or enterprise, the system up time, the contact person for the system, the system's name and location, and services for the system.

### Interface Group

The Interface group collects information about the interface for the system.

This group contains the following: fields that describe the network interfaces and list the system's physical address, description, type, size, bandwidth, operational status, uptime at last change, out queue length, MIB definitions, administrative status of the system, and various input and output data.

#### Address Trans Group

The Address Translation group collects information about the capability to translate physical and network IP addresses.

This group contains the following items: interface index, physical address, and network address for the MIB.

#### IP Group

The IP group contains information about the Internet Protocol functions for the selected network object.

This group contains the following items: fields for forwarding and the default time-to-live for the system. Fields for monitoring input and output data, reassembles and fragments are also displayed.

#### IP Address Table

The IP Address Table group contains fields for the Internet Protocol address, interface, net mask, broadcast address and maximum reassembly size for the system.

#### IP Routing Table

The IP Routing Table group collects the system's destination Internet Protocol address, interface, primary and alternate routing metrics, next hop, and the following data for route: type, discovery, age, and mask. MIB definitions are also included. (IP routing is a function of the Internet Protocol that directs outgoing message packets to the correct destination nodes.)

#### IP Address Translation Table

The IP Address Translation Table group contains fields for interface, physical address, IP address and translation type for the system.

#### ICMP Group

The ICMP (Internet Control Message Protocol) group contains information for monitoring input and output data for ICMP.

### TCP Group

The TCP group contains information that relates to Transmission Control Protocol, such as algorithm, minimum and maximum for retransmission time-outs, monitoring connections, failures, established resets, input and output data, and retransmitted segments.

### TCP Connection Table

The TCP Connection Table group contains data about each TCP connection, with a field for the state of the connection and fields for the local IP address, local port, remote IP address and remote port.

### UDP Group

The UDP group contains data about the User Datagram Protocol, which is used for connectionless transport services. This group contains the following items: fields for monitoring input and output data related to UDP.

### UDP Listener Table

The UDP Listener Table group contains data about the User (or Un-numbered) Datagram Protocol agent for the system. This group contains the following items: fields that list the local IP address and local port for each listener.

### SNMP Group

The SNMP group contains data related to the protocol used to manage and monitor nodes on a network.

This group contains the following: field for listing for authentication traps for the system and fields for monitoring input and output data used by SNMP to manage and monitor nodes on a network.

## Supported MIBs

**Bridge MIB  
(1493)** The IntraSwitch 5212 supports the following Bridge MIB group:  
Base Port  
The Base Port group enables and disables ports.

## Technical Specifications

---

### Network Management Platforms Supported

- SNMP-compatible management software**
- HTTP management software**
- Telnet software**

### LEDs

- 100Mbps operation**
- Maximum Utilization**
- Full Duplex/Collision**
- Data**
- Link**
- Power**

### Connectors

- RS-232 (DB-9, female)**
- RJ-45 (10Base-T, 10/100Base-TX)**
- Asanté MII (Media Independent Interface)**

### Spanning Tree Support

- IEEE 802.1d**

### MAC Address Table Size

- 1024**

### Dimensions

- Width: 17.1 inches (434.3 mm)**
- Height: 2.25 inches (57.2 mm)**
- Depth: 14.5 inches (368.3 mm)**

## Technical Specifications

### Weight

- 11 pounds (5 kg)**

### Power Specifications

- Voltage range: 100 to 240 VAC**
- Frequency range: 60/50 Hz**
- Maximum current: 1.6 A**

### Environmental Specifications

- Temperature: 0° to 45° C**
- Relative Humidity: 5% to 85% non-condensing**

### Standards Compliance

- MIB II**
- RMON (4 groups)**
- BootP**
- DHCP**
- IEEE802.3u**
- IEEE802.1d**
- Safety: UL, CSA, VDE, TUV**
- FCC Class B, CE Class B**

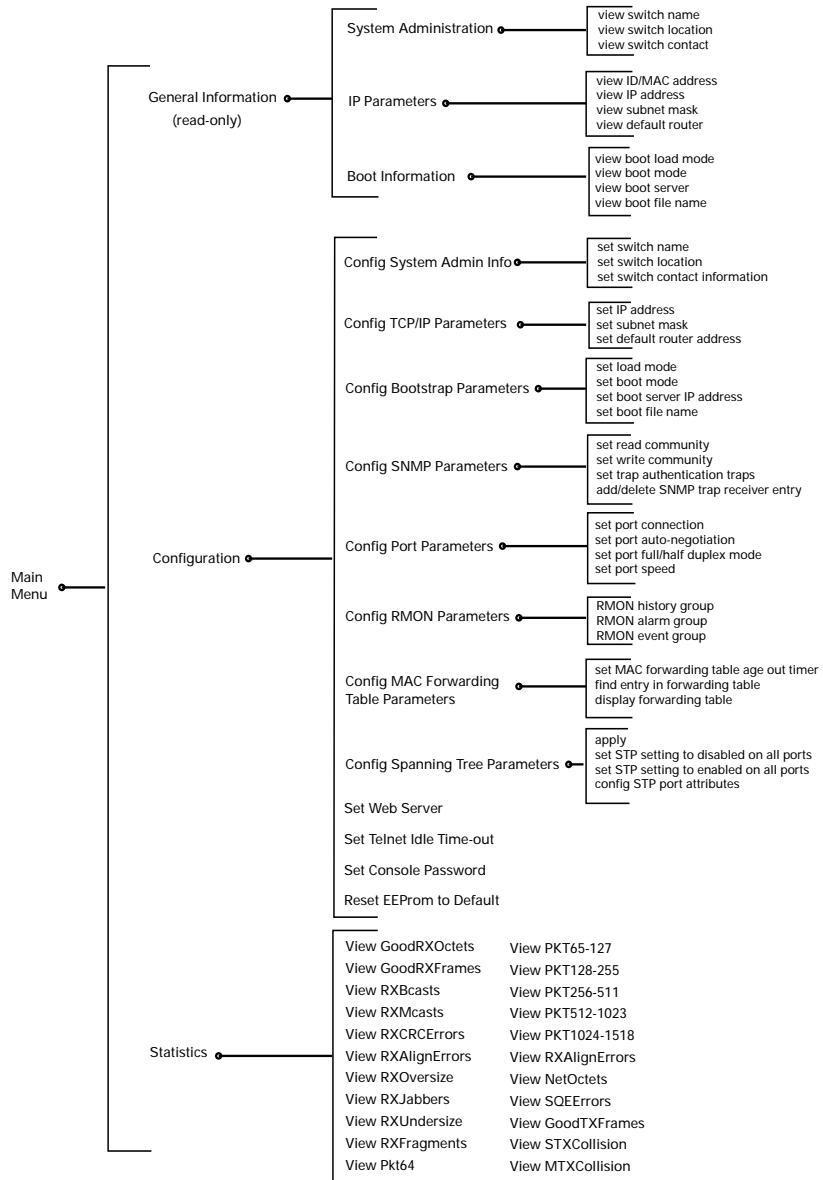
### Mounting Options

- Rack Mounting: standard 19-inch rack**
- Desktop/Free-standing**

### Redundant Power Supply

- Compatible with Asanté's RPSU 6000 (part number 99-00454-07) [sold separately]**

## Management Menu Tree



## Management Menu Tree

## Technical Support

---

To contact Asanté Technical Support:

Telephone:	(800) 622-7464
Fax:	(801) 566-3787
Internet mail:	<a href="mailto:support@asante.com">support@asante.com</a>
World Wide Web site:	<a href="http://www.asante.com">http://www.asante.com</a>
Bulletin Board Service (BBS):	(408) 432-1416
FTP Archive:	<a href="ftp://ftp.asante.com">ftp.asante.com</a>

### Technical Support Hours

6:00 a.m. to 5:00 p.m. Pacific Standard Time, Monday-Friday

## Technical Support

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